EIS
Douglas-fir
1999

Appendices A, D, E, & F

Region 1

Region 6

Douglas-fir *Beetle Project*

Regenerated Forest

Aquatic Restoration

Fuels Reduction

FINAL

Environmental Impact Statement

for the
Idaho Panhandle
National Forests
and
Colville National Forest

1999

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FINAL ENVIRONMENTAL IMPACT STATEMENT
DOUGLAS-FIR BEETLE PROJECT

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APPENDIX A - PUBLIC INVOLVEMENT AND COMMENT RESPONSES

PUBLIC INVOLVEMENT ACTIVITIES

Activities Prior To Release Of The Draft EIS

Public outreach was a cooperative effort between the Idaho Panhandle and Colville National Forests, the State of Idaho Department of Lands, and the University of Idaho Cooperative Extension Service.

The public was first notified of our efforts to evaluate the beetle outbreak through a news release in regional newspapers on October 23, 1998. A Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on November 17, 1998. In mid-November, the project proposal was sent to other agencies, people on the mailing list to receive the "Quarterly Schedule of Proposed Actions", owners of private land adjacent to the project areas, people on the Newport Ranger District or IPNF mailing lists, and others who indicated interest in the situation. The mid-November proposal described the Douglas-fir beetle infestation, resource conditions, and potential treatments. The proposal was also included in the "Quarterly Schedule of Proposed Actions" beginning in the November, 1998 issue. News articles and legal advertisements were published in area newspapers, notifying the public of the project and issuing an invitation to provide comments and recommendations. Open Houses to provide one-on-one information and receive public comments were held in Priest River, Silverton, and Coeur d'Alene, Idaho, in early December, 1998. Additional meetings were held with federal, state and local agencies and tribal representatives. The team considered concerns expressed by both the public and agency specialists.

We received comments from over 200 individuals, agencies, businesses and organizations. Public comments were received in the form of letters, electronic mail messages, phone calls, and personal visits. Comments were used to determine public issues, develop alternatives, and focus analysis.

Public Involvement Since The Release Of The Draft

On January 29, 1999 the Federal Register published the Notice of Availability for the DEIS. We mailed and distributed 164 copies of the DEIS and 322 summaries to members of the public who requested to be on the mailing list and those who became interested in the project. A 45-day comment period ended on March 16, 1999. Comments were used to develop further analysis, to modify existing alternatives, expand one alternative and develop one new alternative, and prepare the Final EIS. Public involvement between the draft and final EISs included over 50 presentations given to organizations such as Rotary Clubs, Chamber of Commerce and professional societies. Additional public involvement included news releases, mailings, news articles, and radio reports. There were seven open houses held over the geographic area; three were conducted during the scoping period and four more were conducted directly after release of the DEIS. Please see the project file for more details.

PROCESSING AND EVALUATING PUBLIC COMMENTS

Content Analysis is the method used to categorize all substantive comments, issues and ideas received on a project. Once categorized, these comments can be distributed to the appropriate specialists for information and to develop responses.

As comment letters were received, they were date-stamped and assigned an identification number. Copies were made for distribution to the decision makers, district specialists for analysis work and the content analysis team. The letters were then read individually by the content analysis team and substantive comments were coded and grouped into categories by subject and entered into a computer data base system.

Substantive comments are those comments which express a specific concern relating to the project. Statements not relevant to the project or those contributing extraneous information were not coded.

The Interdisciplinary Team and the Decisionmakers reviewed the comments. Comments provided the basis for creating new alternatives, changing the original alternatives presented in the DEIS, adding and changing designs and analysis, and making clarifications in the FEIS.

Summary of Comments Received on the DEIS

We appreciate the time and effort individuals, groups and agencies took to provide comments on the DEIS. Comments received varied from general statements to very specific, detailed comments.

Number Of Commentors
Several interest groups supporting and opposing the project encouraged the public to write letters using the interest group's information or provided form letters for individuals to sign and mail in. These efforts contributed greatly to the volume of comments we received but did not provide any new information.

A total of 887 responses were received in various forms; letters or postcards (397), phone calls (12), e-mail (3), office visits (4), faxes (3), or form letters (468). Many of these letters were signed by more than one person. Numerous letters were received with illegible names, address or both. These comments were coded and entered into the system but those missing addresses will not be able to receive further information.

There were 504 responses (518) signatures that were in agreement with the project; 284 responses (659) signatures in disagreement with the project and 99 responses (115) signatures that did not specifically state an opinion either way. This was noted for public interest but decisionmakers do not base their decisions on the number of people supporting or opposing a project.

Demographics
Responses were received from fifteen states and the District of Columbia. The majority of responses were from Idaho (570 signatures), Washington (232 signatures) and Oregon (118 signatures).

Form Letters Received
Six different form letters were received with a combined total of 468 signatures. One letter from each of the six groups was coded and the number of signatures for that letter were counted. Several (70) of these respondents also submitted individual comments on their form letter which were coded as additional comments for each individual.

RESPONSES TO COMMENTS

Organization of Comments

The comments have been grouped into broad subject areas and are grouped alphabetically. Where a comment has been stated by many people, we have paraphrased it under the sub-heading "similar comments" and noted how many people expressed the comment. Where a comment has only been said once and demands a detailed response, we show the comment in italics under the subheading "individual comments." All responses to comments appear in bold type.

Some comments are expressions of opinion or statements concerning the decision and do not always warrant a response. These types of comments will be considered by the Forest Supervisors when making their final decisions.

Suggestions For Reviewing Comments and Responses

This appendix contains the responses to a large number of comments on many aspects of the project. Because of the complexity of some of the comments and the total number of comments received, preparing and presenting these responses has been a significant part of the work between the draft and final EIS. To help readers get the maximum amount of information from this lengthy document we offer the following suggestions.

Use the Table of Contents to find the subject areas you are interested in. Most subjects are further divided into subcategories. We suggest you read most or all of the responses to comments in the subject areas you are interested in to get the most information. For complex concerns or technical questions, it may be necessary to read the responses for more than one subject area.

Summary of General Comments About The Project

There were 487 general comments about the project, both positive and negative, expressing beliefs, attitudes, values and opinions. Many of them appeared in form letters. These comments do not warrant a response but have been reviewed and considered by the decisionmakers.

There were 139 negative comments expressing distrust over agency intentions, and concerns about the negative effects of logging and road building on forest resources (40 of these were from form letters). Of these, many stated that they want to see evidence that the project will improve forest health, reduce the risk of fire, and contribute money for restoration work. Many felt that logging and road building would be more damaging than the beetle infestation and several people said they do not want to see any trees cut. Some said they felt the project proposes too much logging and road building, is short-sighted and needs a more comprehensive plan. Some expressed concern that the project is proposing logging to pay for damage that occurred from previous logging. Several people stated opinions of distrust over the intentions of the project, some of those claiming that the "real" reason for the project is to "get the cut out" or subsidize the timber industry.

There were 348 positive comments (328 of these were from form letters). Of these, many people said they felt the project is important to restore "forests and watersheds, protect private property and promote healthy communities and economies." Some people said it was important to salvage as much of the beetle-infested timber as possible and maximize a financial return to pay for restoration work. Others expressed that salvage and restoration objectives should be considered at the same level. Some expressed that they wanted the project to move as quickly as possible to help stem the spread of the beetles. Others mentioned that they supported thinning more acres to slow the infestation.

Aquatics

GENERAL EFFECTS OF PROJECT ON AQUATICS

Similar Comments There were 36 people who stated general concerns about impacts logging and road building could have on streams, lakes and fish habitat by increasing sediment and erosion.

Response: A primary element of this project is to reduce as many of those sources of sediment as possible. The project focuses on stream crossings, roads that are built too close to stream channels and flood plains, and roads that are at risk of failing over time, which then can contribute large pulses of sediment to the stream network. The vegetation restoration part of the project (the logging and associated access routes)

would adhere to stringent Forest Service management requirements, Forest Service's Soil and Water Conservation Practices, and States' Best Management Practices (BMPs) designed to prevent the creation of substantial sediment sources. During and after any road construction activity, including the removal of roads, some fine sediment may be delivered to streams. Use of silt fencing, mulching, and other standard and site-specific erosion control techniques would decrease erosion and sediment delivery in the short term, and revegetation would fully control it in the long term (see Mitigation Measures, Chapter II). Most sediment delivered to the stream associated with restoration activity is suspended sediment, which routes through the stream system quickly. The amount of sediment is low, and would not alter stream stability or substrate composition. Its presence would be evident primarily as *turbidity* (coloration of water that reduces clarity). Some increase in turbidity may occur. It would be measurable for a short time immediately following storm events that occur during or following the restoration work, and it would be evident for short distances downstream from the fill removed (generally less than 1,000 feet). Deposition or catchment of sediments in the stream would not likely occur, except at sediment traps temporarily installed below work sites to protect the stream.

One of the key decision criteria for this project is to promote a net tangible improvement in watershed condition and water quality. This does not mean simply a balance between new sediment sources and reductions at rehabilitated sources; it does imply that sources and volumes of sediment following the project should be substantially less than before the start of the project.

The project design and the commitment to effective use of BMPs as well as watershed management requirements are expected to result in substantial improvements locally to water quality in many watersheds and their tributaries.

Similar Comments There were nine similar comments expressing concern that logging and road building would cause increased run-off and sediment. One person also mentioned concern about temperature increases in headwaters.

Response: Runoff and sediment were two essential analysis criteria in the project. Although runoff and stream flow can be influenced by logging and roading, the analysis of the designs in this project indicate that there should be no measurable change in stream flow (peak flow magnitude or frequency) at the scale of the analysis watersheds. Some small tributaries (on the order of 15 to 1,000 acres in size) may have some short term increases, however, in all cases the stream channels can fully adjust within their natural range to these flows. Therefore, there would be no effect on the stream or habitat itself from any kind of flow adjustments from the project.

The stream flows in some of these watersheds probably have been elevated in the past by logging. Most of those streams are trending back towards pre-logging levels as the stands become restocked with growing trees and brush. These trends would not be interrupted perceptibly at any scale from this project.

Stream temperature is not expected to change under any alternative since no harvest or road developments would occur where shade would be effected. Some trees that are currently providing shade to streams may die due to the Douglas Fir Beetle. The loss of shade from those trees is not expected to increase temperatures due to the large amount of cold ground water inflow, the high mixing rate of local streams, and to the relatively low amount of mortality of shade-providing trees.

EFFECTS OF PROJECT ON SNOWPACK AND STREAMFLOWS

Similar Comments There were four similar comments expressing concern about the effects of the project on stream flows in combination with snow pack levels. Three of those comments were concerned about recent snow pack levels causing increased peak flows. One comment was concerned about logging reducing tree cover which they said reduces snow pack and summer stream flows.

Response: The large snowpack that is remaining this late in the spring will result in large and sustained stream flows this year. They will be higher than normal, but they are not likely to exceed several of the highest flows of record. Unlike the flashy mid-winter flood flows we have seen in this area recently, the 1999 runoff will probably be fairly well-regulated.

This is a factor in the timing of activities within the project. Certain aspects of the project would be scheduled or delayed to not compound the effects of the naturally high runoff.

Certain logging practices do reduce tree cover. It does not necessarily follow that reduced cover reduces snow pack. The snow pack over an area usually contains as much water following logging, it is just distributed differently. For instance, if small openings (5-acre patches) or strips are created, the openings often accumulate more snow over the winter season at the expense of the adjacent timber stand.

On a small watershed scale, if the vegetative configuration can be modified enough to cause the snow pack to melt off earlier in the spring, it is conceivable that summer flows would drop earlier also. This phenomenon has not been measured at the Forest's stream flow monitoring sites.

EFFECTS OF REMOVING TREES ON RUN-OFF

Similar Comments There were two comments that expressed concern about the effects of removing trees on watersheds and run-off. One person said that a certain amount of trees should be left to lay on the ground to prevent increased run-off. The other person said logging will cause dry conditions in the forests by killing trees that hold water in the soil.

Response: The project is designed to leave adequate amounts of standing and down trees which would meet soil and watershed needs as recommended by research (see Chapter II, Mitigation Measures).

Trees take water out of the soil through a process known as transpiration which reduces soil water content. Logging would increase soil water content.

WATER QUALITY LIMITED SEGMENTS

Individual Comments

Given the prevalence of threatened or impaired waterbodies as defined under Section 303(d) of the Clean Water Act found within the proposed project area, we recommend that the presentation include a subsection devoted exclusively to the identification of such waterbodies, pollutant(s) of concern and the specific actions proposed to prevent a net increase, and preferably cause a net decrease, in the pollutant(s). This effort would complement other information found elsewhere in the document. In addition, we also recommend that, to the extent possible, the description address how the various alternatives would interface with the State of Idaho Division of Environmental Quality total maximum daily load process.

Response: Listed Water Quality Limited stream segments from the section 303(d) have been clearly identified in every watershed where they occur within the project area. The fact that they are listed and the fact that there are specified contributing pollutants created a basis for the disclosure of watershed responses and effects of each alternative in each watershed of the project.

No TMDLs have been developed by the States for the affected watersheds at this time. The Forest Service is committed to participate in the development and implementation of TMDLs. Until they are developed, the Forest Service is developing restoration strategies for consideration in the TMDL implementation development. Several of those restoration elements are incorporated in this project. Moreover, Forest Service policy is to not contribute to the pollutant(s) that caused a segment to be listed. An objective of this project is to go beyond the "no net sediment increase" policy, where sediment is the pollutant of

concern; but to create a tangible reduction in sediment in watersheds, not just those on the 303(d) list. Such reductions will be achieved primarily through the reconstruction of roads using current BMPs and improving stream crossings, relocating encroaching roads and, following use, obliterating some roads.

With these criteria, the project is expected to contribute towards the restoration of most of the watersheds involved. Although it would not likely fully restore most of the watersheds, it would trend them further toward restoration than without the project. And, it would certainly not compromise any water quality restoration strategies that may follow from the States' TMDL assessments.

The few streams that are not designated WQLS contain segments that are functioning at risk or non-functioning and should be considered for WQLS designation.

Response: The Forest Service does not determine which stream segments qualify for Water Quality Limited Segment (WQLS) designations. The states of Idaho and Washington are responsible for WQLS designations and the EPA provides oversight.

WATERSHED ANALYSIS

Expand the discussion regarding potential short-term, implementation-related sediment impacts to include the mitigating effect of BMPs and how BMPs will be monitored during and after implementation for effectiveness. (p. III-83) In addition, please clarify the following statement which frequently appears at the end of the alternative effects analysis: "This alternative is not expected to contribute to the pollutant of concern." For example, indicate whether the statement is the result of a quantitative or qualitative watershed analyses, and provide the underlying analyses to support the statement.

Response: The States' BMPs and the Forest Service's Soil and Water Conservation Practices have been added to Appendix F. Conclusions that "This alternative is not expected to contribute to the pollutant of concern" are based on 1) the cumulative response of the watershed system over time in response to forest practices in the past, reasonably foreseeable practices (programmed, but outside the scope of this decision), and practices proposed in each alternative; 2) the mitigative effectiveness of BMPs and Conservation Practices as applied locally; and 3) the control of, reduction of, or elimination of the pollutant (usually sediment) through restoration practices in the alternative. The pollutant that caused the States to list the segment is almost always sediment in the affected watersheds of this project. The expected sediment responses in these three areas are estimated with several analysis techniques, including models, tests and evaluations by research and the States, and through the experience of professional hydrologists in the application of the practices on similar lands and streams. All the sources are synthesized and evaluated to make the conclusions. Implementation of BMPs will be monitored. Effectiveness monitoring for BMPs is part of the Clean Water Act feedback loop and also part of the Forest Plan. Monitoring is described in more detail in Chapter II.

Watersheds/Hydrology: On pages 2, 3 and 4 of KEA's Dec. 15, 1998 letter, we raised the issue of lack of scientific accuracy of the WATSED model regarding calculations of the hillslope length of individual logging units. We also raised the issue of using the Riffle Armor Stability Index (RASI) procedure during the DEIS process, and the Water Resource Effects (WRE) analysis. None of these issues were considered or analyzed in Chapters 2 or 3 of the DEIS. Regarding WATSED and hillslope length, nowhere in Vol 1, Chapter III [or] *Vol 2, Chapter III, Hydrology, does the Forest Service supply accurate, high quality, scientific analysis of the WATSED model and the inability of the model to calculate the hillslope length of individual logging units. Due to the large number and size of each of the logging units in each of the Analysis Area, particularly clearcuts, the DEIS should have supplied accurate scientific analysis of the true extent of sediment production, in tons per acre per year, that has been released from each of the logging units in each Analysis Area. The DEIS did not supply this data. The DEIS also should have supplied accurate scientific data for the amount of sediment that would be produced from each of the proposed new clearcuts, particularly those in size from 40 to 85 acres. Given the number of clearcuts present in each of the Analysis Areas, with the expected large number with long hillslopes, together with the number of damaged watershed in each Analysis Area, it is clear that the*

WATSED model has failed completely to prevent damage to stream channels in each Analysis Area. The DEIS did not supply data regarding the tons per acre per year of sediment that would be produced from each of the new clearcuts in each area proposed for logging...The Final EIS must indicate why the RASI surveys were not performed. The logging being proposed with Alternatives B, C, D, E and F will not improve or protect the watersheds or reduce water yields in each of the watershed now listed as non-functioning or functioning at risk... RASI (RSI) surveys should have been performed during the DEIS process in each Analysis Area but they were not. The findings in the DEIS on page II-44 that "Alternative A-E would be consistent with the Clean Water Act and Water Quality Limited Listings" [and] *[t]he statements in the DEIS on page III-356 that "No measurable effect would occur to perennial streams. Harvest of live trees is unlikely to change flow during rain-on-snow events" cannot be substantiated by the WATSED model due to the model's inability to calculate hillslope length. The findings also cannot be substantiated due to the fact that RASI (RSI) surveys were not performed in any of the Analysis Areas... The IPNF draft document "Implementation Guidelines Watershed and Stream Channel Evaluations for the Forest Plan " July 1, 1992 lists guidelines for measuring watershed conditions, and includes RASI Guidelines. The DEIS should have stated how many of the watersheds in each Analysis Area has a Condition Red to better inform the public as to the true condition of each of the watersheds that are listed as non-functioning. Since the RASI surveys were not performed in any of the 6 Analysis Areas, the public was not supplied the required scientific data to judge whether or not new logging and road buildings will further damage the watersheds in each of the 6 Analysis Areas...The DEIS also should have referenced the following Forest Service documents regarding damaged watersheds and the proposed logging and road building in each of the Analysis Areas. The October 30, 1981 IPNF document "Selected Drainages for Scheduling Adjustment for the Forest Plan,"... "Implementation Guidelines: Watershed and Stream Channel Evaluations for the Forest Plan" July 1, 1992*

Response: The appropriate use and background for WATSED are explained in Chapter III and documented in *WATSED Water & Sediment Yields*, developed by Range, Air, Watershed and Ecology Staff Unit Region 1, USDA Forest Service and Montana Cumulative Watershed Effects Cooperative; and in *Watershed Response Model for Forest Management WATBAL Technical Users Guide*, Rick Patten, February, 1989 (in project file).

WATSED (and its precursor, WATBAL) both are accounting programs that apply response curves to certain forest practices (roading, logging, and fire) under conditions defined by local landtypes and climate. The programs do not model processes specifically. The response curves were originally derived from process models and statistical analyses. "Hillslope length" is not a variable used in WATSED. There is a variable in the Universal Soil Loss Equation and some other site-oriented models that are useful for estimating surface erosion from relatively homogeneous plots. WATSED, however, is used as one estimator of cumulative effects (over time and space) at the scale of a complex watershed.

WATSED has been calibrated and validated locally on similar lands and forest practices involved in this project. Its logic and rationale, as well as its limitations and applicability are known to the users; critical requirements for prudent users.

RASI (Riffle Armor Stability Index) surveys and analyses were not used in the project because there is no clear application or validation of the concept to watersheds or the forest management issues in this project. RASI was a concept that was being investigated several years ago; however we have not found it to be adequately developed to use for supporting appropriate technical conclusions. It does use the principles of one established hydrologic survey method, the Wollman Pebble Count, that is a key element in most of the Forests' stream surveys (reference Wollman, M.G. 1954. A method of sampling coarse riverbed material. Transactions of American Geophysical Union 35: 951-956. This is not a reference used for this project).

American Wildlands is primarily concerned with impacts to water quality and fisheries. The DEIS fails to analyze the short term impacts to these important resources. A large percentage of the streams in the project area are water quality limited (WQLS). Clearly, these drainages need the proposed restoration measures. The USFS has an obligation to bring these streams into compliance. The restoration efforts, however, should not come at the expense of additional disturbance and impact from logging and road building. Watersheds are in poor quality due to high road densities and past logging activities. The Douglas-fir Beetle Project will further contribute to these causes of degradation. Most of the project area

streams are impacted... For all WQLS streams, the USFS claims, "This alternative is not expected to contribute to the pollutant of concern," usually sediment. Yet the tables may show an increase in sediment, however small. Regardless, until a TNML is completed, the USFS has not determined how much additional pollutant can be added. For example, Alternative D is predicted to increase the sediment yield by 2% (to 40.8 tons per square mile per year). Yet the analysis claims that although the Beaver Creek watershed is a 303(d) listed water quality limited stream due to sediment, "this alternative is not expected to contribute to the pollutant of concern" (HI-125). It is arbitrary and capricious for the DEIS to claim that no pollutants of concern will be contributed, when the tables indicates increases in sedimentation. Other WQLS watersheds will have a noted increase in the pollutant of concern. The Fernan Lake Watershed, for example, has a 14% increase in sediment yield under Alterative D. The effects section states, "This alterative is expected to contribute to the pollutant of concern" (IH-91). This alternative clearly violates the Clean Water Act and state water quality regulations... The DEIS fails to separate the impacts of temporary road construction, road reconstruction, and logging from restoration activities. We request an analysis of the direct, indirect, and cumulative impacts from extractive and road building activities. Because this analysis has not been completed, it is likely that all action alternatives will violate state water quality regulations and the Clean Water Act for adding additional pollutants to WQLS streams. The effects section of the DEIS indicates that there will be short-term direct and indirect effects from sediment increases within most project area streams. Because the effects analysis only considers the long-term impacts associated with the road restoration activities, there is no way to ascertain the short term impacts of sedimentation until restoration activities are completed. The DEIS also lacks information about timing on a site-specific basis.

Response: WQL listed segments are identified and fully addressed throughout Chapter III. There are 15 segments listed on Idaho's 1996 WQL list, and one on Washington's list where the segment is within a watershed where project actions are proposed. Seven have been delisted in Idaho's 1998 list. In addition, there are several lakes or main river segments downstream of project watersheds that are listed. Watersheds involving or influencing 303(d) listed segments carry additional significance for management on National Forest System lands. None of the listed watersheds involved in the project areas have a completed TMDL or implementation plan in place. The Forest acknowledges Idaho's DEQ policy, "*Before TMDLs are approved for a WQL water body there are interim requirements which are spelled out in DEQ POLICY MEMORANDUM PM98-2.... Basically, these requirements call for USFS proposals in WQL watersheds to address how activities will prohibit further impairment of beneficial use.*" BMPs and Soil and Water Conservation Practices would be fully implemented to maximize protection of water quality.

Logging practices do include a risk of contributing to the pollutant that caused some of these segments to be listed (usually sediment). Design, location, and BMPs would control most of that risk. However, an objective of the project is to provide a tangible improvement (usually a reduction of sediment loading) as a result of the project. Therefore, extensive and effective watershed restoration elements are integral to the project. The analysis in every watershed, with emphasis on all the WQL watersheds, was designed to address the net loading potential. The intent is for the restoration and improvement elements to far outweigh the logging and direct restoration-induced sediment loading.

Certainly, most ground-disturbing actions, including most restoration actions, have a potential for contributing at least incidental short-term pulses of sediment. With the application of BMPs (including the use of sediment barriers, isolating construction from live water, implementation of INFS riparian and stream rules, effective seeding, etc.), these incidental pulses of sediment would be mainly in the form of fine sediment that is transported as *suspended load* resulting in turbidity (cloudy water) for a short time and a short distance below the work site usually following intense summer rain storms. In most cases, the sediment that has caused the segment to be listed is coarse sediment that is transported as *bedload*. It is the bedload component that the proposed restoration actions are designed to substantially eliminate by eliminating the source. This would incidentally reduce the long term sources of fines also.

The design and intent of BMPs is to effectively control most sediment sources so that beneficial uses are protected. Restoration is designed to eliminate or make those sources inert.

The DEIS states on I-5: The six-step process outlined in the "Environmental Analysis at the Watershed Scale" (Regional Interagency Executive Committee and Intergovernmental Advisory Committee, 1995) was followed to describe the characterization of this final step down analysis for this EIS. We are not assured that this is truly the case. For example, the delineation of Analysis Areas, as shown on alternative maps, is of concern. It seems that significant portions of some watersheds are not a part of the Analysis Areas. Table III-21 confirms in at least one case, only part of the watershed is discussed (the portion of the watershed below Marie Creek is not part of the analysis). Where this omission leads to an absence of information and analysis, including cumulative effects, of condition in omitted portions, the analysis cannot be based upon a true "Watershed Analysis" or satisfy NEPA's requirements to take a "hard look" at cumulative effects.

Response: The assessments for existing conditions used, as a general model, the principles and processes in the *Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis* version 2.2, August 1995. The watershed characterization tables and narratives of chapter III are the results of those assessments.

In every case, the watershed analyses in the EIS addressed cumulative, direct, and indirect effects when they occur at multiple scales, including the six-code scale "sub-watershed," tributaries, and local sites and reaches. Certain aspects of the analyses were limited to logical scales and analysis areas that were consistent with the accuracy and credibility of data that it required. For instance, when models are used to estimate potential cumulative flow and sediment in response to typical forest practices; landtypes, road surveys, and logging histories are often limited to that portion of a watershed that is essentially national forest. Often that information is not available on state or private lands (with the exceptions of inholdings and checkerboard ownerships within national forest boundaries). When the information is available, the analysis boundary is extended as appropriate. Modeled estimates are only one source of information used in any watershed analysis. It is synthesized with all the other data, assessments, analyses and knowledge to determine findings for each scale of watershed appropriate for the issues and for NEPA.

The DEIS does not clearly indicate what kinds information, and what values of data, have been used to designate watersheds as "Properly functioning", Functioning-at-risk", or "Not properly functioning." Assuming there is validity to these categories, watershed maps should be provided which show which streams, or segments of streams, fall into each categorization... All the data presented in the Tables in chapter III for the Hydrology section do not really provide the cumulative effects analyses the Forest Service seems to want it to do. Meaningful interpretation is lacking.

Response: The basis for the "functioning" characterizations are listed in the Existing Condition Tables and narratives in Chapter III.

The DEIS should clearly disclose the increment of delayed recovery for the measures of watershed conditions used, for each alternative in each watershed, since more roads and more logging will in fact cause delayed recovery.

Response: The EIS analyses indicate that ongoing recovery will usually not be delayed, but in many cases be accelerated by the reduction of sources. The objective of the project is to limit adverse effects related to logging, and promote restoration in excess of that necessary to mitigate those adverse effects that BMPs do not account for.

Additionally, we would like the Forest Service discuss the research which proves the value of such parameters discussed on III-58 to III-61 for assessing watershed cumulative effects. Without validation, the use of such projected impact parameters as "tons of sediment" are very questionable.

Response: The parameters used in the analysis and comparisons were developed as being responsive to the issues within the scope of the project. Their relative relationships to each other when alternatives are compared is their appropriate use. There is no value or intent to use absolute quantified results. A single unit of measure is used to provide relative comparability. The assumptions and concepts are documented for their use and application within the EIS.

The DEIS at III-62: During the 1996 flood event a section of the 625 road...Similar discussions of road failures are disclosed in several places in the DEIS. How do the watershed models used for this analysis numerically predict sediment inputs from such events?.

Response: As the cited documentation for the model states, it is not an event-based model and there is no intent or implied attempt to model events.

The EIS should also disclose just how "standard engineering techniques" are used to predict "probability of failure" of culverts (III-81)... That last paragraph on III-63 mentions roads "no longer maintained" but should provide statistics on miles of road in each watershed falling in that category. It also mentions failed/failing/high risk of failing road-channel crossings but does not tell which, if any of these would be fixed under each alternative. The DEIS should provide such information for all watersheds.

Response: Risk at inventoried stream crossings was estimated as a function of 1) probability of failure, and 2) the cost to the stream and water resources as a result of the failure. Probability of failure is calculated using established hydrologic statistics estimating the chances of certain flood events occurring in the "watershed" above the crossing; and the chance of the crossing's design parameters being exceeded under those flood conditions. The "cost" of failure was calculated in terms of potential fill loss from overtopping, structural failure, or escapement into the approaching road or ditch. Specifics and references are in the project files.

The DEIS fails to acknowledge the existing flood risk-highly elevated due to past logging activities will lead to even more adverse "ongoing flood damage repairs." Furthermore, even though some culverts will be upgraded to withstand "100-year events" this ignores the fact that 100-year events are almost routine now because of hydrological conditions following past logging activities.

Response: The EIS recognizes the risks and adverse effects of past land management activities as well as naturally occurring events in the drainage and addresses those observations in several ways. The criteria for logging unit size and design was limited to small, irregular, partial cuts wherever possible in response to the concerns. Analysis suggests that the nature of the logging proposed will not cause a runoff response that will affect water quality or cause a beneficial use to not be supported. A primary purpose of the project is watershed restoration activities that are designed to control or alleviate the adverse effects of past actions and natural events.

A "100-year event" is a statistical characterization based on the record available that approximates the flood magnitude of a hydrologic event that might occur 10 times in 1,000 years. That is not "routine."

The DEIS wrongly assumes there is no hydrological role for dead and dying trees in the forest. Table III-130 somehow concludes that logging will result in less hydrologic openings than no-action. This doesn't make sense.

Response: The EIS includes management requirements and mitigation elements for several of the alternatives that recognize the value of dead and dying material on site. It is reflected in the analysis of soil productivity and nutrient loss, roughness elements and cover, erosion control, and organic debris recruitment to streams.

We did not intend to suggest that there would be fewer hydrologic openings as a result of any alternative in the short term.

We also wonder how, with the removal of 18 inventoried stream crossings, the road density won't decrease. Road mileage should decrease under that scenario because of road obliteration, since portions of those roads will not be maintainable lacking stream crossings.

Response: In some of the more heavily roaded watersheds, the removal of relatively small lengths of road is not apparent in road density calculations reported at a reasonable level of accuracy. In other cases,

a road segment can be rendered "hydrologically inert" by simply removing crossings and relief structures, and removing high risk fill. The road may still be usable for recreation and certain vehicle access. In that case, the road length does not decrease.

The Forest Service has not demonstrated the proposed logging alternatives would not delay (listed stream segment) recovery. Table III-41: "This area is a group of small watershed pieces. It may not be appropriate to use some larger scale characteristic parameters at this scale. The cumulative contribution of this area will be addressed at the sub-basin scale." Where is this sub-basin ECA analysis? ...

For several basins, Forest Service comments are that "indirect sediment input to streams would increase under all action alternatives," and immediately following is a contradictory statement of "No increase in sediment from yarding activities is expected under any action alternative." Please explain this inconsistency... Which creeks are water quality limited and why are they water quality limited?... What is the current ECA for each watershed? What percent of ECA is within riparian areas? What will the ECA be for each alternative? ...

Response: All alternatives in watersheds with 303(d) listed segments have been analyzed. In most cases there will be water quality improvement trends established (at least locally) and sediment contributions as a result of the project (from logging and from restoration actions) will not be increased over the life of the project or following the project. Beneficial uses will not be impaired in the short or long term in any case. These findings rely on the fact that 1) the restoration and improvement activities will result in substantially more pollutant reduction during and following the project than from incidental loading generated by logging and restoration construction, 2) that BMPs will be fully employed in a timely and effective manner, 3) and that implementation monitoring requirements have been identified in Chapter II and will follow Forest guidelines.

The EIS and the project file include cumulative estimates of peak flow changes and sediment in streams by watersheds at several scales. Models, one of the tools used to synthesize these estimates, use the ECA concepts to calculate watershed response. ECAs, "equivalent clearcut acres," are simply a way of summarizing the extent of tree cover openings in a watershed, The calculation is only an intermediate step in estimating watershed response.

How many allotments are found within the project area? Are cattle a problem for water quality? Will new clearcuts allow increased riparian access?

Response: There are several allotments in the Priest Lake and Coeur d'Alene River Districts. They have in the past and continue to play a role in stream conditions and water quality. Where livestock use is permitted, its cumulative effects along with past, present, and foreseeable actions, including the alternatives of this EIS, are identified and addressed by watershed. There are no grazing allotments in the Newport Analysis Area.

There are no clearcuts proposed in this project. Where harvest units are near streams, the streams have no-harvest areas (see Mitigation Measures, Chapter II).

The Forest Service has failed to provide baseline monitoring on three out of seven creeks/sites in three years. Given this record, we doubt the reliability of the monitoring requirements that are discussed in the DEIS. If floods keep washing out monitoring stations this seems to indicate the estimate of 50, 75 or 100 year floods is incorrect. What is the contingency plan if monitoring station, or restoration work is washed out by these (once rare but now more common) flood events?

Response: The Forest has maintained a network of baseline water monitoring facilities which have continued to reliably report for at least ten years.

From inspection of both the Forest Service discharge record, and USGS record on large rivers, there is no apparent indication that the frequency of flood events has changed in recent times. However, since flood

frequency is a statistical calculation and every year adds one more event to the record, then the calculations should be expected to adjust. The magnitude of that change becomes less as more record is added to the population of known events.

Water measuring facilities are subject to any other structure located within the pathway of floods, ice, debris, sediment, and floating logs. Therefore, they often need maintenance and sometimes replacement. One contingency that has been incorporated to avoid data loss concerning peak flows is the installation of crest gauges. These gauges are far less susceptible to the forces of a river, but continue to provide instantaneous peak stage information.

While we generally support this concept we do anticipate some negative impacts to fish and wildlife from the proposed action. Our main concerns are the construction of new permanent and temporary roads, the reconstruction of roads and large clearcuts in heavily impacted watersheds.

Response: We agree that roads in general are a primary disturbance that has lead to adverse watershed and water resource effects in the project area. Therefore, the use of roads in this project have been fully evaluated in terms of need and compounding adverse effects. When a road was indicated for this project, the location to avoid sensitive landtypes, sediment delivery, and streams was a primary consideration. BMPs and implementation monitoring have been emphasized to verify the analysis findings that water resources would be protected. Most importantly, restoration of sites, primarily roads, is a key element in the project that would, in most cases result in a greater reduction of erosion and sediment impacts than would be incurred by the vegetation restoration activities. With regard to your concerns about large clearcuts, no clearcutting is considered in any alternative for this project.

Large clearcuts, particularly those on south facing slopes, can change the timing, rapidity and magnitude of snow melt and runoff. This can result in high flows, slope and culvert failures and significant sediment delivery to streams. These impacts can be reduced by avoiding large clearcuts particularly on south facing slopes and in those drainages already heavily impacted by roading and clearcuts.

Response: Modification of peak flows is a resource issue that was identified, analyzed, and played a role in design considerations. The harvest units in most cases are not concentrated on one slope or aspect, and the prescription is often partial cuts focused on trees that have been or will likely be infested. The reduction of tree cover will occur with or without the project. The analysis in nearly every case suggested that peak flows would not be appreciably affected. No clearcutting is considered in any of the alternatives.

Secondly, there is little attempt to break this project up into realistic phases, treating the most pressing problem areas immediately but recognizing that some of the impacted areas must be handled quite delicately because of their current watershed problems. I am not opposed to commercially harvesting timber in healthy watersheds. I am adamantly opposed to putting timber salvage priorities ahead of watershed restoration where it is unquestionably recognized that the watershed is a tragic mess.

Response: Watershed restoration has the same priority in the project as the vegetation restoration and recovery components of the project. However, it is the infestation that is defining the focus; when and where restoration actions would take place within the scope of this project. In many of the affected areas, both watershed and vegetation restoration is necessary. In some cases, opportunities have to be taken advantage of to accomplish watershed restoration...and this may be one of them.

AQUATICS (Coeur d'Alene River District)

Individual Comments

It really pains me that the North Fork of the Coeur d'Alene River drainage will be further degraded and at the same time the taxpayers will lose. With a past record of losses on logging and the current glut of timber on the market, it stands to

reason that this sale will be no different. We're getting 100-year floods on the North Fork on a regular basis. The huge piles of gravel and the filled-in holes in the river are good indicators of a drainage that has been severely damaged.

Response: Sediment impacts to the North Fork of the Coeur d'Alene River are the result of a variety of factors, many of which are management-related (CDA Geographic Assessment). Splash dams, flumes, and log drives down the North Fork earlier in the century scoured the channel and resulted in tremendous amounts of bed and bank erosion. Removal of riparian vegetation exacerbated sediment inputs from channel widening and bank erosion. Additional sediment has been introduced to streams from road/stream crossing failures throughout the basin, which may have been exacerbated by water yield increases from timber harvest. This project was designed to result in positive trends for recovery of the watersheds. Water yield increases due to timber harvest would be undetectable at the scale of the North Fork. Each alternative contains proactive measures to improve the watersheds such as stream crossing removal, culvert upgrades and road obliteration to promote positive trends in watershed condition. A "100-year flood" is a statistical characterization based on the record available that approximates the flood magnitude of a hydrologic event that might occur 10 times in 1,000 years.

The Bumblebee, Steamboat and Hart Areas should be dropped from further consideration due to the small number of acres involved; 5 acres in Steamboat, 10 acres in Bumblebee, 25 acres in Hart, and 50 acres in Beaver Creek pages III-25 through III-28. The damaged conditions of the watersheds in each area, particularly the Beaver Creek watershed, page III-79, are a direct result of Forest Service logging.

Response: All risk areas were evaluated on the basis of watershed improvement opportunities as well as for beetle activity risks. Watershed improvement would be accomplished in all management areas through stream crossing removal, culvert upgrades, road obliteration and similar measures.

Alternatives were developed and evaluated for each watershed that range from the proposed action, to restoration only, to no further action.

Data is not presented in Chapter 3 that would inform the public of the number of acres in the Wolf Lodge and Marie Creek watersheds that have had regeneration logging, nor the number of acres that have been clearcut during the last 15 years in both watersheds. The true cumulative effects to the watersheds are not analyzed in relation to the proposed logging. There is no mention of the over 2,000 acres of logging from the Horizon Sun timber sale in relation to sediment production in Wolf Lodge and Marie Creek.

Response: All past, present and foreseeable activity associated with the Horizon timber sale was analyzed in the Final EIS.

Accurate, high quality data is also missing in the DEIS for the Hydrology section, on pages III-111, III-119, III-123, III-131. There is no data for Coeur d'Alene Lake Watershed, Bumblebee Watershed, Hart Watershed, and Chain Lakes Watershed for the percent of watershed that has hydrologic openings for each of the Alternatives.

Response: Missing or unreported information in the DEIS, and information necessary for evaluation of effects has been included in the FEIS.

The Final EIS must also indicate that the increased water yields that have damaged the watersheds in the Coeur d'Alene NF are directly related to the 65 square miles that have been clearcut in the Coeur d'Alene NF since 1970.

Response: Although the scope of the project is limited to some portions of the Coeur d'Alene River Basin, the analysis for this EIS was extended to the scale necessary to address the direct, indirect, and cumulative effects of this project.

The condition of the North Fork of the Coeur d'Alene River, including the Water Quality Limited designation by the State, strongly influenced the design and the analyses and it will influence the final decision. The extensive early day and more recent logging, local mining developments, wildfire history,

logging road and general transportation systems, and riparian development all appeared to have played a role in the present condition of the river. Increased water yields probably have added additional stress as well as caused some severe, but localized effects. Nevertheless, the array of activities in the basin cumulatively have influenced the present day trends and conditions.

Localized, but widely dispersed water yield increases will occur in bug infested areas under all alternatives to some degree, including the No-Action Alternative due to loss of canopy from beetle mortality. Watershed restoration activities associated with the project would actually reduce localized water yield in certain areas by removing stream crossings and obliterating roads.

The Forest Service has systematically overcut and over-roaded the North Fork of the Coeur d'Alene River watershed and knowingly destroyed the integrity of it and its tributaries. During this period the Forest Service assured the public that through mitigation there will be a long term net benefit. Noticeably absent from previous EAs of timber sales is the lack of concern for cumulative effects on the North Fork of the Coeur d'Alene River-a problem inherent in the DEIS.

Response: Cumulative effects for the North Fork are analyzed at the watershed and tributary scale in the Final EIS.

This passage in the DEIS seems to be there to justify denial of cumulative impacts on larger watersheds: Typically the physical effects of runoff modifications... The Forest Service is obviously avoiding cumulative effects analyses for larger systems. Finally, the fact that all watershed impacts of all DF Beetle project activities in the Coeur d'Alene River District would impact Lake Coeur d'Alene is ignored by the DEIS.

Response: The effects of localized management activities tend to be measurable at the individual sites, but become increasingly masked over larger areas. Cumulative effects are analyzed at the watershed and tributary scale in the Final EIS.

The DEIS recognizes Beaver Creek as a listed Water Quality Limited Segment but notes it is "scheduled" in the Forest Plan because "site-specific data does not indicate a sediment/fish habitat problem exists. Which is correct?

Response: The listing of a stream segment as Water Quality Limited is done by the State of Idaho and U.S. Environmental Protection Agency (EPA) as required by section 303(d) of the Clean Water Act. The listing was made based on both objective and subjective factors and opinions. The State is currently evaluating the actual status. When the Forest Plan was developed, the site-specific data that was available at the time did not indicate a sediment or fish habitat problem.

The DEIS fails to discuss the additional impacts of additional logging and road building in relation to the flooding of communities downstream, particularly in the Coeur d'Alene River watershed. Such a serious issue demands a high level of analysis which is absent in the DEIS.

Response: As was noted in the DEIS and also in the FEIS, flooding of local downstream communities would not occur as a result of beetle-related harvest. Management activity associated with the project would actually reduce localized peakflows in certain areas by removing road/stream crossings and obliterating roads that increase the drainage efficiency of the watershed.

The Forest Service also failed to disclose in the EA that watersheds in the North Fork that have had so much canopy removed are reacting to precipitation levels found in a ten year Rain-on-Snow event with streamflow that would be expected from precipitation levels that would occur every 100 years or longer.

Response: We are not aware of any substantiation of this assumption. However, there is evidence that the extent of early day and more recent development in the North Fork Coeur d'Alene River, including logging, roads, mining, recreation developments have created accelerated runoff and increased peak flows in small headwater basins. Frequent flood peaks (perhaps 2-5 year events) may be affected for a period of years.

The criteria for logging unit size and design was limited to small, irregular, partial cuts wherever possible in response to the concerns. Analysis suggests that the nature of the logging proposed will not cause a runoff response that will affect water quality or cause a beneficial use to not be supported.

Looking at the revised maps of the CDA River district for Alternative D shows very little beetle damage directly in the Wolf Lodge Creek drainage. Where you do indicate significant infestation is in a sub-tributary of Wolf Lodge Creek, that being Marie Creek. I suggest to you that Marie Creek has endured habitat degradation that is appalling. Past clearcuts up high in the headwaters of that stream created major bedload movement down in the low gradient portions of this creek. In spite of assurances that the currently ongoing Horizon sales would not exacerbate the watershed problem, I personally have ridden horseback to witness significant bedload movement coming down out of Skitwish Creek into the Marie Creek system. Now you want to again enter the upper elevations of this drainage with the same sense of emergency as all other infested areas. May I suggest that going into an already badly damaged drainage such as Marie Creek cannot be treated as having the same urgency and resiliency as all other infested areas.

Response: The proposed harvesting in Marie Creek is dead tree removal only. The disturbances associated with logging would be localized and would be isolated from water courses. It would have essentially no short or long-term adverse effect on water quality or beneficial uses of the water. All action alternatives include actual watershed improvement measures that would result in positive trends in watershed condition.

Stream-side roads are proposed for reconstruction along portions of 4th of July Creek, Little Bumblebee Creek, and Cottonwood Creek. All of these streams support westslope cutthroat trout and unless reconstruction includes moving the road prism away from the creeks and floodplains, we believe the roads will continue to negatively affect channel integrity and downstream or adjacent fish habitat.

Response: Cottonwood Creek is the only stream in these watersheds that has any reconstruction proposed in an encroaching riparian road. This is an existing road section with at least one chronically failing culvert and other related problems. Under the action alternatives that use the road, degraded sections are being reconstructed by the purchaser to access the timber. At the end of the project, the entire road would be decommissioned (culverts pulled) and the encroaching section obliterated and recontoured. There is no reconstruction planned for streamside roads in 4th of July or Little Bumblebee Creeks.

Proposed new temporary roads in the Wolf Lodge Creek drainage and the Hayden Creek drainage include multiple headwater stream crossings. Although somewhat dependent on the length of time these temporary roads are in place, they pose an increased risk to already impaired watersheds.

Response: Roads, even temporary roads, do add risk. Because of the water quality status and issues in the Wolf Lodge Creek watershed, the necessity of each road was re-evaluated in the Final EIS; roads proposed were located above live water streams wherever possible, or an alternate route was found. All crossings, including temporary road crossings must be designed to meet the INFS-based Forest Plan amendment objectives. These include providing for a crossing that would safely pass a 100-year flood event. BMPs would be used, such as sediment barriers, erosion control planting and matting, relief cross drains, and removal of the crossing as soon as it is no longer needed.

Large clearcuts proposed in the 4th of July Creek and Mokins Creek drainages are on southerly or westerly aspects, increasing the risk of rapid flow delivery to streams during rain-on-snow events. Both streams support westslope cutthroat trout and have been negatively impacted by previous land management activities. Mokins Creek is an important spawning tributary to Hayden Lake.

Response: No clearcuts are proposed under any alternatives. Approximately 49 acres of regeneration harvest are proposed which would remove approximately 75% of the canopy, all of which are on north-facing slopes at low risk for rain-on-snow events. Under the No-Action Alternative, the canopy would be removed by beetle mortality within a few years. The action alternatives would leave approximately 25%

of the canopy standing, which would help maintain a "boundary layer" of cooler air close to the ground that minimizes the potential for rapid runoff associated with rain-on-snow events.

In Mokin's Creek, approximately 13 acres of regeneration harvest are proposed on south-easterly aspects. Again, under the No-Action Alternative, the canopy would be removed by beetle mortality within a few years. The action alternatives are shelterwood or seed tree prescriptions which would remove approximately 75% of the canopy, leaving 25% of the canopy standing. This 25% remaining would help maintain a "boundary layer" of cooler air close to the ground that minimizes the potential for rapid runoff associated with rain-on-snow events.

AQUATICS (Hayden Lake)

Individual Comments

I believe the impact on the streams that flow into Hayden Lake and the impact on the wildlife would be far more severe than your report showed.

My wife and I are third generation owners of property on Hayden Lake. Your plan would cause large amounts of mud and silt to enter the lake.

Response (to the previous two comments): Our analysis indicates that increases in sediment yields in affected streams from the proposed alternatives would be imperceptible even in local tributaries of the Hayden Lake watershed. Logging-derived sediment loading would not have any affect on the lake, its water quality, or its beneficial uses. The commitment to the use of BMPs, as well as the design of road crossings to safely pass 100-year flood events would reduce the risk of sediment loading from these sights and activities. Most importantly, all of the action alternatives would implement substantial watershed restoration measures, such as road obliteration and riparian road removal, that with sediment reductions that would outweigh the incidental sediment expected to be generated by the logging.

My family owns a cabin at Hayden Lake which we frequent in the summer. I am loathe to imagine the damage to the lake that could occur from logging. The sediment load to stream and lakes, and slides that could occur, as well as the plain ugliness of a logged forest, seem a high price to pay in order to take a gamble on reducing beetle populations.

Response: Increases in sediment yields in affected streams from the proposed action alternatives would be very minimal (< 1%). This level of sediment, if it should be introduced, would be undetectable in a water body as large as Hayden Lake. Using BMPs and designing culverts to pass 100 year flows would further minimize the risk of sediment inputs from management activities. In addition, all of the action alternatives include watershed improvement measures such as road obliteration and riparian road removal.

The purpose of the project is not to reduce beetle populations, but to recover the value of the beetle killed trees to promote aquatic and vegetation restoration.

AQUATICS (Priest Lake District)

Individual Comments

My comments apply specifically to the Priest Lake RD, and primarily to the watershed, hydrology and fisheries sections in chapter III. My comments assume that one of the harvesting alternatives will go forward. My preference is alternative C from the standpoint of maintain current sediment yield because of no new road construction. My comments also are restricted to Lamb Creek, Binarch Creek, Lower West Branch, Lower Priest River, and because of the Lower Priest River listing, its tributaries Upper West Branch and Quartz Creek. Throughout the Watershed Section, the narrative and tables of Watershed Characteristics acknowledge stream impairment, for example: "hydrologically destabilized, pool filling, channel widening" (Lamb Creek, pg 316); "elevated sand deposition" (Binarch Creek, pg 317);

"the presence of mid-channel bars throughout the basin are indications of accelerated sedimentation above what would have been expected" (Upper West Branch) pg 318); "the instability of both Steep and Quartz Creeks is evidenced by the amount of bedload/sediment which has reached the mainstem of Quartz Creek" (pg 319); "the Lower West Branch is a channel out of hydrologic equilibrium as evidenced by extremely poor channel conditions and numerous point sources of ongoing sediment delivery to streams" (pg 320); and "the majority of recent failure site have been located on roads which are not maintained or on irregularly maintained roads" (pg 311). Tables III-124 through III-128 show road densities greater than the 2.0 miles/mile criteria, high percentages of functioning at Rick and Not Properly Functioning conditions, moderate to high sediment yields, and significant riparian road densities. The Fisheries section also acknowledges significant impact on fish habitat from encroaching and riparian roads and crossings.

The Clean Water Act and Water Quality Limited Listings are mentioned (pg 354), and it is stated that the Forest Service will demonstrate or find that their actions will not result in a net significant increase in the pollutant of concern or prohibit or delay potential recovery." First, I believe that the current 303(d) lawsuit, resulting court order, and State TMDL responsibilities are underplayed in the report. While the proposed road reconstructions, obliterations, and elimination of stream crossings are welcomed, I simply do not see from the data and maps a substantive enough effort to improve watershed conditions to significantly trend the 303(d) listed streams toward water quality compliance. Standard language is used throughout the Cumulative Effects paragraphs, "the combination of effects of any action alternative and past, present, and reasonably foreseeable activities would not increase, and likely decrease sediment to." Why not propose sufficient reconstructive activities so that an affirmative statement about sediment reduction and habitat improvement can be made. This intent is implied on page 354 under Forest Plan, second paragraph. It would seem that the Douglas-fir beetle project would provide a timely opportunity over the next few years to better rectify the acknowledged problems of existing sediment delivery and stream instability problems in these watersheds.

Following are a few specific comments or questions that I had about the draft EIS: Page 310. In the narrative, Encroaching and Riparian Road Densities were stated as length relative to the length of all perennial streams in the watershed by percent. In the Watershed Characteristic tables however, the units stated were miles/miles of streams. For example, in Table III-124, Lamb and Binarch watersheds, Riparian Road Density was 0.8 miles/miles of streams which can't be right unless this meant 0.8% of perennial stream miles. Page 311. "Approximately 1,900 miles of road and 1,500 road channel crossings exist in the Priest River Watershed." Is this the entire basin or just Federal land? Page 321. Sensitive snowpack for Lower West Branch = 31%. I think this is much higher. Lower West Branch is extremely "flashy and volatile" to rain-on-snow events, and during these periods LWB becomes very turbid nearing the turbidity limit in the Idaho Water Quality Standards. Page 325. Lamb/Binarch - "some road segments would be removed that are encroaching on the flood plain." I do not see such obliteration on the maps. Page 326. "Road maintenance and stream crossings improvements should trend all streams towards an increase in stability and reduction in fine sediment composition of stream channel substrate". In my view an overestimation of the benefits based on the maps.

Response: The FEIS addresses the 303(d) (Water Quality Limited Segments) status of every watershed and the direct and cumulative effects for each alternative. The Forest Service was not a party to the lawsuit, but it does acknowledge the State's role and requirement to prepare TMDLs for 303(d) listed waters. The Forest is and will cooperate wherever possible to support the State's efforts. Since TMDLs have not been developed by the State, the Forest will adhere to DEQ's interim policy PM98-2. All alternatives were analyzed against the criteria that activities under consideration will result in no further impairments of the beneficial uses, and that the total load of listed pollutants decreases.

We have acknowledged that some streams within the project area are exhibiting signs of instability. Additionally, we acknowledge that road failures have occurred on roads that were closed with barriers or brushed closed without first having the culverts pulled. Recognizing these challenges, the agency focused energies on eliminating roads that had a high risk for failure or that were excess to the long-term transportation plan. Also the agency reviewed many road segments for relocation or obliteration where the existing road was hydraulically modifying the channel or where the road was an active source of sediment to the creek.

Five parameters included in the DEIS were later dropped from the analysis because it was determined that they were not driving issues within the scope of this project. The Enroaching Road Densities that you mention was one of the tracking variables which was dropped. The Riparian Road Density was a parameter that was used for characterization of the existing condition in the DEIS and has not been

included in the FEIS because of its lack of utility for this project. The 0.8 miles per mile of stream indicated that the number of miles of road within 300 feet of perennial streams totalled to 80 percent of the perennial stream miles. The word density implies a number being divided by area rather than by length so the numbers that we reported were actually ratios not "densities."

The 1,900 miles of road and 1,500 road channel crossings that we quoted in the DEIS for the Priest Lake Watershed were estimates based on numbers generated primarily on National Forest lands. We did not include these numbers in the final document to avoid extrapolation and the possibility for confusion of interpretation such as you expressed.

The measure used to define the inherent sensitivity to rain-on-snow events for this analysis is the percentage of the watershed that is between the elevations of 3,500 and 4,500 feet. Increased turbidity in and of itself does not necessarily indicate sensitivity to rain-on-snow since it can also indicate road or stream site erosion that occurs in a variety of climatic and stream flow events. In addition to the inherent sensitivity, disturbance activities such as wildfire, regeneration harvesting, and road construction can increase a watershed's response to rain-on-snow events. Significant loss of vegetation can affect the rates and susceptibility of snow melt during rain-on-snow events, and roads (through extending channel networks) can increase the rate and amount of snowmelt and sediment delivered to streams. As a result, to fully understand a watershed's response to rain-on-snow events you need to consider the inherent sensitivity and the altered response induced by disturbance activities. The other disturbance indicators in the existing condition and effects tables should also be considered. Specifically, in reference to the flow regime for the Lower West Branch, the hydrograph located on the mainstem of Priest River documents that the channel forming events for the lower drainages of the Priest River basin are tightly linked to high spring runoff streamflows, not to rain-on-snow events.

The DEIS statement that encroaching road would be removed from the floodplain in the Lamb/Binarch area was an error. There is no inventoried encroaching road in either Lamb or Binarch Creek that would be removed under any alternative.

The maintenance and reconstruction projects in Lamb and Binarch Creek would reduce fine sediment contributions as stated in the DEIS. However, you are correct in stating that the decrease would be modest in Lamb Creek and minor in Binarch.

Page 337. In Table III-132, as well as the other Effects to Watershed Conditions tables, approximate sediment yield from Alternative D is increased based on "permanent and temporary roads, and regeneration and heavy thinning harvest units proposed in each watershed" (page 322). I am assuming your calculations takes this back to current conditions over a certain time period, because if not, then there is a net increase of sediment yield in 303(d) watersheds. Are calculations possible to estimate sediment yield decreases following reconstruction, obliteration, and elimination of stream crossings? I think that is what Table III-142 was trying to show (page 367), but that table was unclear. Page 359. Table III-138. No description for code H. Page 363. Either Table III-139 or III-140 is mislabeled and should read "Watersheds not burned by large fires." Page 368. Table III-144. As best as I can tell from the maps, I do not see 2.1 miles of Encroaching Road reduction in the Lower West Branch.

Response: We apologize for the erroneous numbers that were presented in Table III-132 of the DEIS. The data for the watershed model was reviewed and corrected. The correct values are in the FEIS and there is no increase in sediment yield according to the watershed model for neither Binarch nor Lamb Creeks. Although, we do not believe that the logging-associated action alternatives would result in a net increase in sediment yield, there may be short-term increases in sediment as a result of proposed road construction in Binarch Creek and the proposed road obliteration in both drainages. This increase in sediment would be very localized and would not reach the mainstem of either drainage. The code "H" on page 359 of the DEIS means "historical." We also changed Table III-139 and III-140 to be clearer (although the table numbers may be different in the FEIS). Finally, the 2.1 miles of encroaching roads in the Lower West Branch is wrong. We would be reducing 0.2 miles of encroaching road in the Lower West Branch.

It is difficult to estimate the quantities of sediment reduction that would result from the proposed reconstruction, obliteration, and elimination of stream crossings. To estimate the effects of these actions and compare the alternatives, four parameters were used. These include net stream crossings, net associated risk, net road mileage, and net encroaching roads. These measurements are displayed for each watershed or watershed area in the Environmental Consequences portion of Chapter III - Watershed. The effects of these activities are discussed under Common Effects of the Alternatives. The effect of not removing stream crossings, encroaching roads, etc. also are discussed for the No Action Alternative if these structures are not removed.

Possible effects of the proposed project on our domestic water supply--Our concern is that the maps of the Quartz Area for the proposed cutting units to be accessed by USFS road 1300 which, while as shown are not now precisely placed upstream of our water supply, are nearby and if expanded might adversely effect our domestic water quality.

Response: We are guided by the Forest Practices of the State of Idaho to protect domestic water rights. According to the State of Idaho, Class 1 streams are used for domestic water supply or are important for the spawning, rearing or migration of fish. Such water shall be considered to be Class 1 upstream from the point of diversion for a minimum of one thousand three hundred and twenty feet. According to Idaho Rules and Regulations, Class 1 streams are afforded the greatest protection. Furthermore, these high valued streams would be protected under INFS guidelines with 300 foot buffers on fish bearing streams and 150 feet on non-fish bearing perennial streams. There should be no effects to any downstream domestic water users from the proposed projects.

The Hydrology pages III-344 to 356 are out of order and difficult to follow.

Response: We appreciate your comments and have corrected this in the FEIS.

Table III-125 indicates 66% of the watershed is Not Properly Functioning. How is more degradation consistent with NFMA's mandate that water quality be maintained?

Response: The *Not Properly Functioning* characterizations used in the EIS refer to observations or assumptions that all or parts of a watershed are responding to natural or management-induced disturbances that may be inconsistent with how the natural watershed system would have responded. Impaired water quality or stream conditions are often evident in streams characterized this way. Impaired water quality does not meet the goals of the Clean Water Act, therefore, it is the Forest's strategy to facilitate restoration with every opportunity. The Beetle project offers at least a partial opportunity to do so, and that is why watershed restoration is part of the purpose and need.

The alternatives were designed to assure that there would be no further degradation of water quality, and in most cases they were designed to provide at least some tangible net improvement to water quality, stream condition, or other conditions that support or affect beneficial uses.

AQUATICS (Newport District)

Individual Comments

Please accept this addendum letter on behalf of the Kettle Range Conservation Group - it should be added to the comments sent by the Ecology Center on behalf of the Kettle Range Conservation Group, The Lands Council and others: NEWPORT RANGER DISTRICT Watershed Integrity/Fisheries: Please address how the water quality issues in the New Moon sale, raised in KRCG's appeal have been followed. Since implementation of the New Moon timber sale, what monitoring has been done to see if BMP's have been effective and what are the results?

Response: Timber sales generated by the New Moon Timber Sales and Prescribed Burning for Ecosystem Restoration Environmental Assessment began to be harvested in the summer of 1998. As of September 1998, 10 units had been harvested, no fuel treatments had been done on the harvested units (two were

burned in October, 1998), about 200 acres of prescribed burning had been completed (out of 5,000), and about half the road system had been constructed. Monitoring conducted last summer included:

- **On-going contract inspections by the Timber Sale Administrator and Engineering Representative.**
- **An interdisciplinary post-harvest review on 4 harvest units (review after harvest but prior to fuel treatment),**
- **Road final inspection, and**
- **Post-burn review on the prescribed burning.**

The following were found related to Best Management Practices:

1. **In the post-harvest review we found skid trail spacing appeared adequate. Waterbars were installed and appeared adequate. Seeding on skid trails had been done, but none had germinated at the time of the review.**
2. **Stream protection distances appeared to meet the requirements of the Inland Native Fish Strategy. They were not measured during the review, but had been measured during layout.**
3. **We are having some problems with germination of grass seed in some areas. We have asked the purchaser for a sample to test seed viability.**
4. **The EA called for tops to be left in the woods on some units. The Timber Sale Administrator (TSA), in consultation with the district biologist and soil scientist, agreed to allow the purchaser to yard with tops attached, and take them back into the woods on the return trip. The TSA, biologist, soil scientist reviewed two units where this was done, and concluded that it did not meet the intent of the EA. This practice was halted.**

Page 111-528 states about Indian Creek, that the no action alternative will have more negative effects on hydrology than the proposed logging actions. Please reference the science which supports this claim. Intuitively, a large logging operation would have much greater negative effects on streams than no logging.

Response: This was an error in the DEIS. Please refer to the revised effects conclusions for Indian Creek Alternative A in the Newport District section.

Page 111-524 states that slope stability will decrease under the no action alternative, but not under any of the action alternatives? Please reference the science that supports this. We feel that active removal of trees, i.e., logging, will decrease slope stability, and that leaving trees which will likely stand for at least 20 years, will not decrease slope stability.

Response: This was an error in the DEIS. Please refer to the revised effects conclusions for Skookum Creek, Alternative A in the Newport District section.

AQUATICS (Bead Lake)

Similar Comments Two people commented that they believed proposed logging would harm Bead Lake's water and scenic quality.

Response: We all appreciate the natural beauty of Bead Lake and we greatly value water quality. The Bead Lake situation is complicated in that so much of the basin is heavily infested by the Douglas-fir beetle. The obvious visual impacts of these attacks are not yet apparent to the casual viewer. However, within a few months, the slopes surrounding Bead Lake will begin to turn from green to red. If the dead trees are left on the site, there will be a much higher probability that a wildfire could burn more severely because of the heavy fuels. Such a fire in the steep terrain would be very difficult to control. Another impact from a high severity wildfire would be an increase in water and sediment yield to the tributaries feeding into Bead Lake. Our proposal is to remove only the dead and dying trees from the slopes around Bead Lake. The majority of the harvesting would not be ground disturbing. As such, the proposed activities do not differ significantly from what would happen if no action is taken. With the prescribed BMPs and strict adherence to INFS guidelines, there would be no delivery of sediment to the creeks or the

lake. The proposed road work, which includes maintenance, road obliteration and road reconstruction would decrease the risk of sediment production and delivery which is an important improvement over the existing condition. See Appendix D for list of all roads proposed for treatment.

Individual Comments

The Pend Oreille River Analysis Watershed Existing Condition Review recognizes that Lodge Creek is impaired and Functioning at Risk. The review also recognizes that the same Bead Lake Watershed has the highest proportion of sensitive landscape, sensitive snowpack, highest estimated sediment load, and highest road density in the sensitive landscape of the Pend Oreille River Analysis Watershed. Yet the proposal for this watershed is for severe pressure from selective harvest, which can only increase the risk of excessive runoff and sedimentation. Current climatic changes with an increased frequency of warm late winter rains and potential for flooding has not been taken into account. Only historical norms were evaluated. The climate, and therefore flooding risk, is changing, only to be exaggerated by the proposed selective harvest. None of this is considered in the DEIS. Indeed the potential for increased sedimentation exists if the RHCA buffers are damaged after thinning, which is likely with ongoing beetle activity.

Complete review of watershed risks in Bead Lake Watershed based on projected, not historical climatic changes and the interaction with sensitive snowpacks and sensitive landscapes.

Response (to the previous two comments): The potential effects in the entire project area were projected based on the climatic and hydrologic variability exhibited by the watershed systems in the recent past (approximately the last hundred years). We cannot predict future shifts in these processes. There has been hypotheses that such vast global changes might occur, but no consensus has developed. In the event that global shifts begin with the rapidity that might change the analyses for this project, the project will be re-evaluated.

The presence of sensitive snow packs and sensitive landscapes was taken into account in the analyses because of the extent that they affected hydrologic processes in the past.

The Riparian Habitat Conservation Areas (RHCAs) would not be harvested. A functioning RHCA does not need only live trees to provide benefits to a stream. When trees become diseased or when they die, they fall over the streams and provide large woody debris for stream structure and fish habitat.

The primary beneficial current use of Bead Lake as a drinking water source must be preserved.

Response: As described in Chapter III, the risk of degradation of water quality at Bead Lake is very slight due to (1) the size of the no-harvest riparian habitat conservation areas, (2) the mechanics of helicopter yarding, and (3) the ground cover expected under the selective harvest proposed. Any sediment generated by the project that might reach the lake, would enter in the two arms farthest from the homes. It is extremely unlikely that pollutants could enter the lake in sufficient quantity to make the water unusable with reasonable treatment. Some alternatives propose road obliteration in Lodge Creek, which would reduce sediment from these roads.

In the analysis of watershed effects for the Bead Lake Drainage, two stream crossings are described as being removed with Alternative D, yet none are listed on the accompanying charts. Is this an omission or another inaccuracy within the DEIS?

Response: The actual number of inventoried stream crossings being removed in the Bead Lake Basin is only one. However, there are numerous crossings that would be removed with other work but were not inventoried during the field review. By definition, a crossing was considered to be "inventoried" if physical characteristics of the crossing were actually measured (i.e. depth of fill, slope of pipe, size of pipe). Most high risk crossings in the project area were inventoried, however, in some instances poor access prohibited allowing us to measure the sites prior to the analysis.

ROAD EFFECTS TO AQUATICS

Similar Comments There were six similar comments stating concern about the effects of roads (temporary, reconstructed and newly constructed) on watersheds and fish due to increased sediment, runoff and erosion.

Response: The geographical assessments developed for the sub-basins that involve these project areas (on the Idaho Panhandle National Forest), monitoring, and various other analyses and assessments indicate that roads are a primary contributor to many of the adverse watershed and water quality effects that are evident in the waters of the Forest. Therefore, the essential restoration elements of this project address road components that appear to be contributing adverse effects. In addition, the use, design, and development of roads to facilitate certain purposes of this project were held closely to watershed protection criteria.

Temporary roads are not the panacea to avoid watershed responses and water quality effects. When they are effectively reduced or made "hydrologically inert" following their use, the risks and effects from them are limited to the life of the road itself, and perhaps one or two years following. Management requirements for these roads employ all appropriate BMPs. Crossings would be eliminated prior to spring runoff or would be designed to the low risk standards employed in longer term roads (including the criteria to safely pass a 100-year event with sediment and debris without extended or adverse water quality, stream, or riparian effects.

RIPARIAN HABITAT CONSERVATION AREAS (RHCAs)

Individual Comments
I would urge you to expand the buffer around the streams and lakes sited for harvesting to increase shading, increase large woody debris recruitment to the streams, and reverse sediment loading.

Response: To be protected, riparian areas would be delineated and the stream marked on the Sale Area Map. Per the Inland Native Fish Strategy (1995), which is an amendment to the Forest Plans, the criteria for the width of the delineations must be adequate to achieve riparian management goals and objectives. In lieu of formal *Watershed Analyses*, minimum standard widths must be applied. They can be changed if documented site-specific determinations achieve riparian goals and objectives.

Alternative D would remove the greatest amount of vegetation from riparian habitat conservation areas, largely due to road construction and reconstruction, potentially affecting woody debris recruitment to affected stream channels and floodplains. In the case of road reconstruction, watershed recovery is further delayed.

Response: We agree with your assessment of the potential negative effects of additional road crossings on fish and watershed processes. As a result, we have greatly reduced the number of stream crossings in Alternative D between the draft and final EISs. In addition, we have greatly increased the amount of restoration work associated with the project. The net result of implementing the preferred alternative would maintain or improve the watershed condition and fisheries resources throughout the project area.

Similar Comments There were two similar comments that expressed concern about logging in riparian areas.

Response: There would be no logging within riparian areas except in conjunction with clearing trees for new road construction. Any new roads constructed as part of this project would only cross intermittent and/or ephemeral streams.

RIPARIAN HABITAT CONSERVATION AREAS (Coeur d'Alene River District)

Individual Comments

The Coeur d'Alene River Ranger District proposes to harvest timber, construct temporary and permanent roads, and install new stream crossings within riparian habitat conservation areas (RHCA). Roads within RHCAs reduce the quantity and quality of fish spawning and rearing habitat and may reduce water quality by contributing to increased sedimentation rates. The Interior Columbia Basin Ecosystem Management Project (ICBEMP) Summary of Scientific Findings indicated that road densities are inversely correlated with aquatic habitat conditions and integrity. Many of the streams within the Coeur d'Alene drainage are already highly degraded because of high road densities and past management activities. Constructing additional roads within a highly roaded watershed is contrary to standards contained in the ICBEMP draft Environmental Impact Statement (EIS). The standards in the draft EIS require the reduction of road densities in watersheds that exceed 1.7 miles/square mile, and stipulate that roads and landings should be located outside of RHCAs. In any event, we expect that INFISH standards would be adhered to throughout these watersheds. Therefore, within these watersheds we suggest the types of activities identified above are inappropriate for riparian protection. Any further impacts to RHCAs within this drainage could result in adverse impacts to bull trout and/or its habitat, which will require formal consultation under the Endangered Species Act (ESA) We strongly encourage the Forest Service to reconsider the proposal to implement these types of activities within RHCA's.

Response: Changes have been made between the DEIS and the FEIS that greatly reduce the number of new stream crossings, increase the numbers of culverts removed or upgraded, and reduce road densities in most analysis watersheds. These changes clearly incorporate the scientific analysis completed for ICBEMP. In addition, we have been in consultation with the United States Fish and Wildlife Service to minimize negative effects while maximizing watershed restoration opportunities within the planning area.

It is important to state that we are not tiering to the preferred alternative in the ICBEMP DEIS since no decision has yet been made on that project. We are, however, incorporating the scientific findings associated with ICBEMP which state we should reduce the effects of roads in watersheds with high road densities. In certain watersheds within the project, the net effects of activities did not result in the reduction of risk to watersheds. The preferred alternative does insure a net reduction in road densities within the planning area. In addition, changes between the draft and the final have resulted in the location of all helicopter landings outside RHCAs.

The proposed activities described above [roads in RHCAs] will further degrade westslope cutthroat trout habitat in the Coeur d'Alene Basin, and will be taken into consideration as an ongoing and increasing threat to the species during our status review. The Service strongly recommends that the Forest Service exercise its authorities under section 7(a)(1) relative to this and other species... The emphasis in the Coeur d'Alene area should be on restoring the degraded condition of the drainages. Therefore, we recommend using existing stream crossings to access harvest units. If new road construction or reconstruction is needed to access harvest units, we recommend they be built outside of RHCAs. All roads constructed or reconstructed for this project should be fully obliterated and recontoured following project completion. In addition to our suggestions regarding road densities and locations, replacing inadequately sized culverts at current stream crossings with larger culverts (sized to accommodate high flow events) or bridges will further aid in restoring the functionality of these drainages.

Response: Within the project area, we are proposing to upgrade undersized culverts, move roads, and obliterate roads associated with the timber sale. These activities, in combination, would reduce long-term risk of sediment delivery and improve habitat conditions for westslope cutthroat and bull trout.

It is our intent to minimize new road construction within the RHCAs. Between the DEIS and the FEIS, all proposed new road construction that entered RHCAs was evaluated. Because we determined that a majority of these roads were not needed as originally planned, they were dropped in the FEIS.

In contrast, we believe it is necessary to do some road reconstruction within the RHCA. Such activities permit us to reduce the risk of culvert failings or to decommission un-needed road segments when timber harvest activity is complete.

RIPARIAN HABITAT CONSERVATION AREAS (Bead Lake)

Broader riparian buffer zones to account for likely harvest damage and beetle alterations of stands in the riparian zones proposed for the Bead Lake Watershed to protect the primary beneficial use of Bead Lake as a drinking water source.

Response: To be protected, riparian areas would be delineated and the stream marked on the Sale Area Map. Per the Inland Native Fish Strategy (1995), which is an amendment to the Forest Plans, the criteria for the width of the delineations must be adequate to achieve riparian management goals and objectives. In lieu of formal *Watershed Analyses*, minimum standard widths must be applied. They can be changed if documented site-specific determinations achieve riparian goals and objectives.

FISHERIES

Similar Comments There were five general comments that expressed concern that proposed logging would affect fish habitat and populations of threatened or endangered species such as Bull Trout.

Response: It has been well documented that timber harvest can lead to a reduction in pool habitat and fish spawning areas in streams. Most of the material that fills these areas comes from poorly designed stream crossings and harvest units with no designed stream crossings. The proposed project would result in a great reduction of sediment produced at stream crossings. In addition, no harvest units would occur close enough to creeks to significantly increase sediment. Proposed activities should help create deeper pools and more spawning habitat in streams in the long run.

Many streams within this project can not withstand additional long-term negative effects and maintain fisheries. That is why there were substantial changes between the DEIS and FEIS that reduced road building and increased the amount of watershed restoration. No harvest (with the exception of a few road crossings) would happen within the riparian zones.

Bull trout are currently listed under the ESA while westslope cutthroat trout have been petitioned, but are not listed. This suggests that meeting the Forest Plan as amended by the Inland Native Fish Strategy (INFS) would provide adequate protection for westslope cutthroat and that it is not necessary to meet the ESA for this species. For bull trout, three Biological Assessments were prepared (one for each of the three districts) and informal consultation with the U.S. Fish and Wildlife Service on the preferred alternative was completed. The Idaho Panhandle and Colville National Forests have received informal concurrence on the Biological Assessments prior to the decisions, thereby meeting the requirements of the ESA regarding bull trout.

Individual Comments
There is little information known about native fish. Few surveys have been completed. This information must be known in order for the USFS to make good decisions regarding project impacts to fisheries. The effects analysis for NUS species is completely unacceptable and fails to address short term impacts. Project activities will occur for four years, from 1999-2003. If sediment is expected to increase during project activities, then streams are likely to receive increased sedimentation for up to four years. This is a considerable effect and can greatly impact native fisheries. American Wildlands requests information about the short term impacts (including the duration of project activities) for native fish. This information must be provided before the USFS makes a decision about this project.

Response: It is incorrect to state that little is known about native fish populations, especially trout species, within northern Idaho and eastern Washington. Extensive studies of fish within this area began near the

turn of the century and continue today. Fish data has been collected from a majority of the larger streams and from many of the smaller streams. Tables in Chapter III show the distribution of some native species within the project area. In addition to fish surveys, stream habitat surveys have been completed throughout the project area. The results of this information is compiled in published papers and reports. This project simply attempts to summarize these findings within the project area.

The effects of this project, at least in part, are described by the effect of sediment production on fish. This is done because sediment can have direct, indirect and cumulative effects on trout (see Chapter III). While all alternatives result in the short-term increase in sediment through road construction, road reconstruction, culvert upgrades, and road realignment, the long-term result is a reduction in risk of sediment delivery to the stream channel. While it could be argued that short-term increases are unacceptable, this line of argument would suggest that road decommissioning, upgrading culverts to pass fish, road realignment out of the riparian areas, or other watershed restoration activities should not be done, since all of these activities can result in short-term increases in sediment. Restoration activities must be taken if we are to restore fish population. The strategy taken in the preferred alternative of the FEIS is that short-term increases in sediment delivery at the site are permitted as long as they would be offset by the long-term risk reduction throughout the watershed.

The DEIS avoids the issue of dealing with all fish migration barriers in the Analysis Areas. The case may be that some may be desirable, at least until conditions improve, to maintain genetically pure westslope cutthroat trout populations or bull trout populations which would otherwise be threatened by other char such as brook trout. However, there was no analysis which examines these issues.

Response: It is correct that the preferred alternative did not remove all barriers to fish passage within the project. We did, however, provide fish passage through culverts on roads needed for completion of the timber sales. Although we would like to provide passage in all areas (except where needed to protect genetic purity of cutthroat) it is not economically or legally feasible with this project alone. To fix all barriers in the planning areas we would have to spend the limited dollars allocated to fisheries or watershed improvement. To do this, the Agency would have to divert dollars that are being spent doing higher priority watershed restoration projects throughout northern Idaho and eastern Washington. The current strategy is to fix watershed problems in areas where fish or watersheds get the most restoration work accomplished for the money. Most of these areas (such as priority watersheds) lie outside the Douglas-fir beetle project area.

Please discuss how you have justified increased risk to bull trout individuals.

Response: The DEIS provided a comparison of alternatives and their effects on various resources. Without such an analysis, we could not see the benefits and trade-offs of each alternative. The Draft EIS showed that all action alternatives would increase the risk to bull trout individuals. This was the result of our preliminary analysis, prior to public and agency review. Being able to see that an alternative could cause unacceptable effects to any resource is how we know we need to change our proposals after the draft phase. The display of negative effects in the Final EIS, could cause the decisionmaker to decide against an alternative (or a feature of one). Since receiving public comments such as yours and our own internal review on the DEIS we have changed our proposal and alternatives, increasing opportunities for restoration of habitat and decreasing some activities that contribute to risk. Chapter III of the FEIS now shows that all action alternatives generally have a beneficial effect on individuals.

On page S-17 of the Summary of the DEIS, Table S-3, Effects on Habitat, all the Alternative's including D the preferred Alternative are shown to increase the long-term risk to individuals. Because of poor past practices, the Coeur d'Alene River Ranger District watershed is in very bad condition. No more negative action can be afforded. The cumulative effects of the past clear cutting and high road density are very visible.

Response: Please see the first response in this section. Also please refer to the cumulative effects discussions in Chapter III.

In volume III, page 155 in the Consistency With Management Direction section, it's stated that Alternative D may not meet the Forest Plan as amended by the Inland Native Fish Strategy. How can this action be taken if INFISH and the Forest Plan is not satisfied? The West Slope Cutthroat is on the verge of being listed under the ESA. No further risks to these populations should be taken.

Response: The reason for the determination that Alternative D in the DEIS may not have met the Forest Plan was that it was not clear that this alternative minimized new stream crossings. Modifications made between the draft and the final have greatly reduced the number of new stream crossings (because there is less road construction) in addition to removing existing crossings. Only stream crossings that were absolutely necessary to meet other components of the purpose and need have been included in the preferred alternative. As a result, the actions within the preferred alternative meet the Forest Plan. The design criteria needed to insure that INFS is met is documented in Chapter II. Criteria include reducing the probability of failure at crossings, minimizing effects to riparian vegetation, increasing fish passage, and maintaining conditions conducive to meeting Riparian Management Objectives.

With this opportunity to improve the fisheries condition why are not watersheds in any Alternative likely to result in long-term reduction in risk to populations? In fact under Consistency With Management Direction in Volume III, page 155, it is stated...."that to meet the Forest Plan, however, the design criteria put forth in other areas must be met." Your best effort will only result in zero improvement if vague criteria is not met in other areas?

Response: This analysis was done at the scale of a large watershed. This scale is appropriate when describing effects to native fish populations, especially fluvial and adfluvial segments. The difficulty is that watersheds are so large it is nearly impossible to take actions that would benefit all areas within the watershed. This project would primarily improve stream segments so specific sub-populations would be improved. The only way to plan a project that would result in the long-term benefit to fish populations would be to remove large amounts of valley bottom roads. In most cases, improving these lower priority roads could only be achieved by reprioritizing limited watershed dollars.

Will the project with no qualifications meet INFISH and the Forest Plan requirements?

Response: The preferred alternative as designed in the FEIS would meet Forest Plan requirements as amended by INFS for both the Idaho Panhandle and Colville National Forests. To meet INFS the FEIS calls for implementing INFS standards where they apply (see Design Features in Chapter II). To insure implementation of INFS standards, a project level monitoring plan has been designed for this project.

FISHERIES (Coeur d'Alene River District)

Individual Comments

Department [Idaho Fish and Game] *management plans for fisheries in the Coeur d'Alene River and Hayden Lake basins call for an emphasis on improving wild cutthroat production to maintain quality fisheries and to work on habitat issues with land managers to meet those goals. According to the document on page III-155, the preferred alternative poses the greatest risk to fish populations, and (along with F) is the alternative most likely to further depress fish populations in many stream segments. Beneficial measures for fisheries include planned removal of 6.5 miles of riparian roads and an increase in accessible habitat to migratory salmonids by 3.9 miles.*

Response: The preferred alternative for the FEIS, when compared to the preferred alternative in the DEIS, greatly reduces the effects of the project. These changes would improve or maintain stream habitat conditions in both the Coeur d'Alene River and the Hayden Lake Watersheds. The net result of this project should be to improve fish habitat in the long-term.

Stream-side roads are proposed for reconstruction along portions of 4th of July Creek, Little Bumblebee Creek, and Cottonwood Creek. All of these streams support westslope cutthroat trout and unless reconstruction includes moving

the road prism away from the creeks and floodplains, we believe the roads will continue to negatively affect channel integrity and downstream or adjacent fish habitat.

Response: We are no longer planning to reconstruct the road along 4th of July Creek. Instead, the road would partially descend into the watershed and would be used at a helicopter landing. Under the preferred alternative we have dropped all activities planned for the Little Bumblebee Creek watershed. As a result, no road reconstruction would be completed within the Little Bumblebee watershed. Finally, we would be doing road reconstruction on Cottonwood Creek. This road is part of a larger transportation plan and would be maintained in its current location, at least for the near future. We would, however, be decommissioning part of the roads in Blue Creek, which is within the same watershed. Locations of roads proposed to be reconstructed or constructed in Wolf Lodge and Hayden Creek have been eliminated or modified to greatly reduce their negative effects on streams.

Fishery benefits would result from obliteration of roads adjacent to Hayden Creek and tributaries, and Jim Creek, and we strongly support those actions. Increased access to 3.9 miles of spawning and rearing habitat for migratory salmonids is anticipated under the preferred alternative, but that is nearly two miles less than what would be provided with Alternative C. We recommend maximizing fish passage in more of the action alternatives, including the preferred alternative. We recommend increasing the number of tributary miles with restored migratory fish access in the final proposal to at least that provided under Alternative C.

Response: The preferred alternative would remove roads next to tributaries in Hayden Creek and Jim Creek. The values of improved passage for the Coeur d'Alene District have changed since the DEIS. The FEIS shows 4.6 miles of fish passage in Alternative D and 2.1 miles in Alternative C.

Your cumulative effects on the fisheries in the Wolf Lodge Creek are difficult to understand but appear to be quite benign; suggesting no material further degradation due to this project.

Response: The cumulative effects of some alternatives analyzed in the draft (including Alternative D) were not benign, because of the extent of new road construction proposed. We have since reduced the amount of new road construction proposed, and activities on National Forest Land now generally result in a slight beneficial effect. However, in combination with actions on private lands, our actions would at best maintain the current condition.

On the Coeur d'Alene Ranger District all action alternatives are likely to result in a long-term risk in individuals in at least one watershed. Such a determination is unacceptable and violates state and federal regulations regarding native fisheries management. Clearly, the USFS must refrain from any activities which provide this significant risk to individuals.

Response: We agree that implementing an alternative that poses a long-term risk to MIS populations violates Forest Service policy, if not federal laws. The law is not as clear when it comes to the effects to individual fish. The Idaho Panhandle National Forest Plan as amended by INFS states that "management that results in a site specific negative effect to individual native fish should be avoided except when other interdependent actions result in the maintenance or improvement at the watershed scale." This is especially true, as in this case, if the MIS species are either listed under the Endangered Species Act or listed as sensitive by the Northern Region of the Forest Service. Because of this concern expressed by the public and specialists within the Agency, changes have been made between the DEIS and FEIS that greatly reduce the negative effects of this project on MIS in all but one watershed (Steamboat).

There is insufficient data and analysis presented in the DEIS, Chapter 3, regarding proposed logging in the Beauty Creek drainage and negative effects, water temperature and sediment, to bull trout habitat that may occur due to proposed logging. Due to the insufficient data presented, along with the degree of past regeneration logging that has taken place in the Beauty Creek area, there is insufficient data presented to support a finding that Alternatives, B, C, D, or E will meet the requirements of the Clean Water Act. There is also insufficient data in Chapter 3 regarding the proposed logging in Beauty Creek as it relates to meeting the requirements of Bull Trout and the ESA. Concerning

proposed logging in the Marie Creek area, there is insufficient data and analysis presented in Chapter 3 regarding the negative effects to populations of Westslope Cutthroat trout from the cumulative effects of past and present logging in Wolf Lodge and Marie Creek watersheds. Page III-137 indicates that sediment loads from hillslope roads and negative effects to stream channels from logging "appear to be the greatest impact from national forest system lands." Data is not presented in Chapter 3 that would inform the public of the number of acres in the Wolf Lodge and Marie Creek watersheds that have had regeneration logging, nor the number of acres that have been clearcut during the last 15 years in both watersheds. The true cumulative effects to the watersheds are not analyzed in relation to the proposed logging. There is no mention of the over 2,000 acres of logging from the Horizon Sun timber sale in relation to sediment production in Wolf Lodge and Marie Creek.

Response: The effects of actions within Beauty Creek would result in an improved condition for fish. This improvement would be the result of removing encroaching roads, increased fish passage, and the reduction in risk of sediment delivery. Improving conditions within Beauty Creek is important because low water temperatures and the proximity of this creek to Lake Coeur d'Alene would make it a good area for bull trout recolonization.

Past timber sales within Wolf Lodge, in combination with the poor condition of this stream on private lands, could pose a risk to fish in this basin. This project, however, would trend fisheries conditions on federal land in a positive direction by reducing road density and risk of sediment delivery.

What data exists to show that population trends of westslope cutthroat trout are "stabilizing" (III-149)? Also on III-149: "Based on the information presented in this document this alternative would meet the Forest Plan as amended by the Inland Native Fish Strategy. To meet the Forest Plan, however, the design criteria put forth in other areas must be met." We wonder what, precisely, are the "design criteria" the fisheries analysis is referring to. Page III-551 contains a table which contains "no bull trout currently within Basin;" all of the watersheds except Indian Creek have this marked. We find this is to be seriously inadequate... We request that this be changed to reflect the Forest's current knowledge, i.e., stream survey done in 1997 for Skookum Creek, and that the language "no bull trout currently within Basin" is removed... Table III-211 lacks what measure of the sediment delivery is expected for short and long-term impacts. The Forest Service recognizes that Indian Creek has bull trout; why is no effort being put in to reduce road density in this basin?

Current research (Bennet and Dunnigan 1997) found cutthroat trout widely scattered throughout portions of even the most heavily managed portions of the Coeur d'Alene District. While these populations were much lower than what was likely present historically, these populations survived the winter floods of 1996. Transect data compiled by Idaho Fish and Game and the Idaho Panhandle National Forest on the Coeur d'Alene River District show little evidence for declines in westslope cutthroat populations. In addition, Hunt and Bjornn (1995) found no long-term consistent trend for westslope cutthroat trout populations within the Coeur d'Alene River over the last decade. The statement that westslope cutthroat populations have stabilized, should not be taken to infer the populations are at historic levels. Cutthroat populations are likely far below historic numbers and the intent of our management activities are to increase numbers of these fish throughout the two Forests.

The design criteria needed to insure that INFS is met is documented in Chapter II of the FEIS. Criteria includes reducing the probability of failure at crossings, minimizing effects to riparian vegetation, increasing fish passage, and maintaining conditions conducive to meeting Riparian Management Objectives.

We agree with your use of language for the presence of bull trout -- the table now shows that the streams were surveyed but bull trout were not found.

Many of the roads in the Indian Creek Basin provide access for private land parcels and that is why they have not been proposed for obliteration. However, restoration work proposed for some of these roads would improve surfacing and drainage, decreasing sediment delivery in the long term (refer to Chapter III, Newport Watershed section).

Of great concern to fisheries are the 20.8 miles of new permanent road construction proposed plus 14.0 miles of temporary road construction and reconstruction of 29.6 miles or road [on the Coeur d'Alene District]. Removal of 20.6 miles of roads is a plus, but does this include removal of the temporary roads constructed?

Response: Because of comments such as yours and others about the possible effects of road construction on fish, the amount of road construction has been greatly reduced. Under Alternative D, new road construction is now 4.9 miles, temporary road construction is 14.9 miles, and reconstruction of roads is 27.7 miles. All 14.9 miles of temporary roads would be obliterated and 86 miles of additional roads would be removed. Please refer to Appendix D for a list of all roads in the project proposed for treatment. Also please refer to the "Explanations of Terminology" card that accompanies the FEIS for descriptions of road obliteration and reconstruction.

FISHERIES (Priest Lake District)

Individual Comments

Our main concern is that the high level of road reconstruction, coupled with temporary road construction, creates a high likelihood of fine sediment delivery to streams already impacted by previous land management activities. Fish habitat on the Priest Lake District has been impacted by fine sediment delivery resulting from past logging and road building and from failures of existing roads and stream crossings. Despite other threats to native fish species in the lake and Priest River, we believe loss of habitat complexity and sedimentation of streams are the major factors which have contributed to the decline of westslope cutthroat trout and bull trout in tributaries to west side of the lake and river.

Response: The effects of this project, at least in part, are described by the effect of sediment production on fish. This is because sediment can have direct, indirect, and cumulative effects on trout (see Chapter III). While this project does result in a short-term increase in sediment through road construction, culvert upgrades, and road realignment, the long-term result is a reduction in risk of sediment delivery to the stream channel. While it could be argued that short-term increases are unacceptable, this line of argument would suggest that road decommissioning, culvert upgrades to pass fish, and road realignment out of the riparian areas should not be undertaken. These restoration activities must be taken if we are to restore fish populations. The strategy taken throughout the FEIS is that short-term increases in sediment delivery at the site are permitted as long as they would be offset by the long-term risk reduction throughout the watershed.

While there are other threats to native salmonids in Priest Lake Basin we agree with you that stream habitat loss has also affected populations. That is why it is important that the restoration portions of the selected alternative of this project are completed. Although these projects alone would not be able to restore native salmonid populations, they are a necessary first step.

Chapter 3 of the DEIS, page 361 indicates that Granite Creek is one of the streams most important to species persistence for Bull Trout. There is insufficient data and analysis presented in the DEIS, Chapter 3, Vegetation, regarding the extent of proposed logging in the Granite Creek drainage and negative effects, including water temperature and sediment, to bull trout habitat that may occur due to proposed logging. In light of large number of acres that have had regeneration logging in each Analysis Area, and the number of non functioning watersheds, there is insufficient data presented to support a finding that Alternatives B, C, D, or E will fully meet the requirements of the Clean Water Act. The fisheries pages III-357 through III-379 are all out of order and difficult to follow. The statement under Consistency with Management Direction "To meet the Forest Plan, however, the design criteria put forth in other areas must be met" is not clear and there is no discussion as to what specific design criteria are being discussed relating to Fisheries and what the other criteria are. The FEIS must clarify this statement with a clear and concise description of each design criteria that relates to Bull Trout and Westslope Cutthroat Trout habitat.

Response: Bull trout populations within the Priest Lake Basin have declined dramatically within the Priest Lake Drainage. Although this decline may be attributed to the presence of lake trout within the

basin (Jim Fredericks et al. 1999), maintaining and protecting watershed processes is a priority, especially when threatened species are present. Actions within this basin would result in the reduction of sediment risk within the watershed.

The design criteria needed to insure that INFS is met is documented in Chapter II of the FEIS. Criteria include reducing the probability of failure at crossings, minimizing effects to riparian vegetation, increasing fish passage, and maintaining conditions conducive to meeting Riparian Management Objectives.

Douglas-fir Beetle

GENERAL COMMENTS

Similar Comments There were 44 comments that stated the beetle infestation is a natural event that will run its course. Many of those said they didn't believe the infestation was an emergency and that logging would do more damage than the beetle. Some said that if the infestation were left alone, it would contribute to a healthier ecosystem.

Response: The Douglas-fir beetle, *Dendroctonus pseudotsugae,* is a native bark beetle that occurs throughout the range of its host, Douglas-fir, in western North America. The primary ecological role of bark beetles is preparing the way for succession in forests by selectively cropping certain age classes of hosts (Coulson & Witter 1984). Bark beetles aid in recycling of trees, releasing bound nutrients to the soil for other plants or trees to use (Schowalter 1981). Bark beetle killed trees are suitable habitat for certain wildlife species. Insects, however, kill more trees in forests each year than the combined total of all other natural factors and most of this mortality can be attributed to bark beetles (Wood 1982). This tree mortality may adversely affect watersheds, recreation and aesthetics, timber products, and provide fuel for wildfire.

Most Douglas-fir beetles live in recently cut, injured, or unthrifty trees. There are a few that are considered primary tree killers that infest and kill apparently healthy trees (Furniss & Carolin 1980). The Douglas-fir beetle is considered a primary tree killer. The only "dead" trees it will infest are those recently cut or windthrown. When populations are low, Douglas-fir beetles infest broken, windthrown, or diseased trees. During outbreaks, beetles spread from weakened or windthrown trees to healthy trees. Outbreaks have occurred in the past and can be considered a natural event. These outbreaks have been triggered by large amounts of windthrow or trees weakened by fire or defoliation. There is no record of outbreaks triggered by root disease. Outbreaks are NOT triggered by overstocked stands, although overstocked stands have a high probability of being infested during outbreaks. As stated in the FEIS, outbreaks normally last 2-4 years. During outbreaks, beetles infest large diameter Douglas-fir, over 100 years old, growing in dense conditions (Furniss et al. 1979, 1981; McGregor et al. 1972, 1975). (Average diameter of trees infested in the Idaho Panhandle National Forests (IPNF) in 1998 was 18.5 inches (Kegley et al. 1999)). Forests containing a high proportion of these trees sustain the most mortality.

To let the beetle run its course would mean severe losses of trees and wood products, and increased fire hazard. We have records of losses occurring after previous Douglas-fir beetle outbreaks. During the outbreak that occurred in the early 1950s, over 333 million board feet of trees were killed on eight national forests in the northern Region, 139 million of which occurred in the IPNF (unpublished report 1953). In Oregon, from 1950-54, the Douglas-fir beetle killed 3.5 billion board feet of trees. As a result of the dead timber, management development plans were disrupted, allowable cut was exceeded, and fire hazard was increased (Cornelius 1955). During an outbreak on the Clearwater NF from 1971-74, approximately 111 million board feet of trees were killed (Furniss et al. 1979).

Individual Comments
Natural disturbance may appear to be destructive at a local scale or in the short term but is in actuality essential to rejuvenation and persistence at a broader spatiotemporal scale. There are complex responses to natural disturbance and species may have adapted, through evolution, to those disturbances. Those changes are exactly what perpetuate natural selection and the evolution of diverse forest communities that are resilient to natural disturbance! Natural disturbances such as this have a significant role in the ecosystem processes associated with coniferous forests, creating openings and edge habitat intrinsic in the forest matrix, as well as meeting the breeding and feeding requirements of species affiliated with snags and down woody material... In fact, infrequent, stand replacing events such as fire and insect outbreaks are a component of the natural disturbance regime in many forest ecosystems, and rather than stable, long-lasting climax conditions, change and turmoil are the true constants.

Response: We agree that Douglas-fir beetle epidemics are a natural disturbance that have a significant role in ecosystem processes. However, the introduction of white pine blister rust, fire suppression, and past logging practices have greatly altered the components of these ecosystems. Areas of the National Forests that were once dominated by white pine, western larch and ponderosa pine are now dominated by Douglas-fir and grand fir. This means that insect outbreaks like we are currently experiencing have the potential to become much more widespread since the host trees are more common than in the past. The loss of seral species has also made these ecosystems less resilient to disturbance. Changes that have occurred in natural ecosystems are described in Chapter III, Affected Environment, Characterization sections.

We also agree on the importance of maintaining snags and down woody debris as a component of forest ecosystems, not only as habitat for wildlife; but to maintain long term soil productivity. Design Criteria for maintaining snags and down woody debris are discussed in Chapter II, Mitigation section.

Certainly, the full range of historic disturbance patterns would today generate significant threats to human life and property. Also, in areas where white pine has been decimated by the exotic disease white pine blister rust, and/or where white pine, larch, and ponderosa pine have been removed by past harvesting, there may not be sufficient seed source to restore these historic forest species, even with natural disturbance regimes.

The role of insect epidemics has been generally villainized by the Forest Service and forestry community. However, Romme et al. (1986) has suggested that beetle-pine systems studied show great resilience and that annual wood production per hectare returns quickly to previous levels and associated changes can be considered generally benign and even beneficial.

Response: The article written by Romme et al. 1986 which you referred to in your letter has some interesting insights in lodgepole pine ecosystems in relationship to Douglas-fir beetle outbreaks. There are some dramatic differences between the lodgepole ecosystems referred to in the article and the ecosystems we are addressing in this project. The species diversity, species composition, and forest structure are much different. It would not be appropriate to apply the concepts of Romme's article to the ecosystems in northern Idaho and northeastern Washington. Changes that have taken place in our ecosystems since European settlement have made them less resilient to disturbance than historically. Mortality occurring as a result of the Douglas-fir beetle epidemic is providing us with an opportunity to restore some of that resiliency to our forested ecosystems.

CONTROLLING THE BEETLE INFESTATION

Similar Comments There were 33 comments stating that they did not believe the project would stop or control the beetle infestation. Others questioned why we needed to accomplish the project so quickly if we knew we could not stop or control the beetle infestation. There were 6 comments that stated we must act quickly and treat all the infested areas to stop or slow the beetle infestation. Three people made general

statements about the extent of beetle infestations they've observed in the Coeur d'Alene and Hayden Lake areas. One person said we should be aware of undetected infestations throughout the forest.

Response: From the outset we have stated that we can not stop or have significant influence on controlling the beetle infestation due to the magnitude of it and our inability to treat every infested area (see Chapter I). We have known that the required time it takes to complete an EIS would not allow us to remove infested trees before the beetles fly in spring 1999. We have said that the best methods for dealing with insect outbreaks are preventive rather than suppressive. In local areas, removing currently infested trees from the forest would remove some beetles and could lessen the spread of the infestation locally. This would be a benefit, but would likely not stop the outbreak.

Through our proposed actions we hope to lessen the impacts of the outbreak and carry out management activities that promote sustainable healthy forests. Our proposal looks at the beetle outbreak as an opportunity to take advantage of capturing the wood value of already dead or dying trees and use the revenue to reduce fuels, and accomplish watershed and vegetation restoration activities. The urgency of the project relates to the progressive loss of wood value since wood decaying fungal spores are introduced into the tree by the beetle and the wood begins to deteriorate 1 to 2 years after the beetle attack (Evans & Assoc. 1999).

Factors that are keeping us from treating all infested stands include resource protection measures, feasibility, and prioritization of treating stands based on restoration opportunities.

Similar Comments There were five similar comments asking why we aren't using pheromones and antiaggregation pheromones to help control the beetle.

Response: The use of pheromone traps on a landscape level is still experimental. We are trying it on a limited basis in cooperation with research to see what affect we may have on controlling where tree mortality occurs and if we have any affect on the beetle population itself. Traps have to be used with care since we almost always get spillover of beetles attracted into nearby trees; so they cannot be used everywhere. We are using them in openings to minimize spillover. If placed near trees, their use would not thin stands but cause entire groups of trees to be killed.

The anti-aggregation pheromone (MCH) works very well in protecting trees from beetle attack but it is not yet registered for operational use--this means it is not available for use everywhere. It is also very expensive--about $60 per acre. We are using it on 2,000 acres this year, the maximum allowed under an experimental use permit issued by EPA. The pheromone projects are not connected to this EIS and our proposed logging. There is no proposed logging in association with the use of the pheromones.

Individual Comments
Wouldn't spraying the trees be less expensive and less damaging than tearing up the forest by logging?

Response: There are no chemical pesticides currently registered or recommended for killing Douglas-fir beetles under the bark of infested trees. Such a treatment would not be economical. Using preventive sprays to keep beetles out of uninfested high value trees is currently being tested.

Your entomologists are correct - there is no way to control an "outbreak" population of Douglas-fir beetles. But there are measures to reduce the chance for "an outbreak" to develop. Should climate change scenarios' materialize, then brace yourself! "Beetle outbreaks" (understand populations of susceptible host trees) will be a normal phenomenon! How do we prolong the life-span of currently established trees under such stress prone conditions? Act on this. Develop hazard rating scenarios - models which encompass characteristics of site (geological parent material, soil chem/phys attributes, indices of nutrient cycling, moisture and temperature regimes, eco-physiological conditions of trees and indicators of their development trajectories - all of that and more and correlate this with information on bionomics and host relationships of major pathogenic organisms, link this to the beetles. Plan ahead. We must stop chasing the tail of a

crisis! We must become prepared for major changes in the ecological systems we are responsible for. If we don't do it fast, we - forestry, will loose out.

Response: The analysis of the proposed Douglas-fir beetle project has incorporated the elements you present, in developing alternatives and in establishing mitigation measures and management guidelines. A rating system was developed by area entomologists to evaluate which stands were most likely to sustain substantial mortality if attacked by beetles. This information was then combined with an assessment of risk of attack, based on locations of current infestations, to establish analysis area boundaries and to project which stands might become infested as the outbreak continues over the next several years. The hazard rating system may also be used in future project analyses as one element in prioritizing stands for treatment.

Geologic parent material, soil attributes, and nutrient cycling were considered in developing mitigation measures to ensure soil productivity. For example, analysis of soil parent materials indicated that potassium may be limited on some sites proposed for harvest. The fuel treatments on these sites were modified in some alternatives to insure that potassium (mainly stored in needles and small branches) would have an opportunity to leach into the soil over winter. In other alternatives tops would be yarded during logging operations to better reduce fuel levels and fire hazard. The link between potassium deficiency and root disease was just one concern with potential loss of this nutrient. This and other mitigation measures such as maintaining large woody debris and minimizing soil disturbance and compaction are detailed in Chapter II, Mitigations section of the FEIS. Information on moisture and temperature regimes, habitat types, silvics of tree species, and known insect and disease problems are all incorporated into making detailed silvicultural prescriptions.

Integrating multiple restoration objectives and social values simultaneously is a difficult challenge. We have much to learn. When we've got watersheds that are compromised, we may need to devote a portion of our limited resources to fixing the aquatic problems. And, that may limit how much we can accomplish with the vegetation at the same time. Likewise, opportunities for prescribed fire become more constrained the closer we are to areas with high densities of rural homes. Many of our areas of high Douglas-fir beetle activity are next to "urban interfaces."

The Forest Service failed to adequately disclose that timber harvest methods could prolong Douglas-fir beetle outbreaks when stumps remain or when slash greater than 8 inch diameter remains.

Response: The Douglas-fir beetle does not infest branches or small diameter tree boles. The utilization standard during logging on the IPNF is down to a 6-inch top. Therefore, logging slash would not provide habitat for the beetles. Other secondary bark beetles and wood borers would colonize logging slash. Stumps may have been a source of Douglas-fir beetles in one instance in British Columbia but we have not seen stumps as significant producers of beetles elsewhere. If stumps were infested, the amount of phloem available for beetles to utilize is extremely small and very few new beetles would be produced. Standing broken tree stobs after the ice storm were not very attractive to Douglas-fir beetles or did not produce many brood (Dr. Ladd Livingston, personal communication).

Although the Forest Service has said from early on the course of the beetle cannot be significantly altered, the Forest Service is still responsible for so many newspaper articles and letters reflecting the belief that the beetles can and must be controlled.

Response: As much as we would like to, we can not control what is reported in the newspapers. In fact, we found several articles written about the project to be misleading or incorrect. We did produce a paid advertisement in cooperation with the Bureau of Land Management, and the states of Idaho and Washington to increase awareness about the beetle infestation and its primary causes. It has never been our intent to lead people to believe that the beetles must be controlled.

(A) Burning: Page S-1 of the Summary and Page I-1 of Volume One indicate that the ice storm of 1996-97 damaged trees, which lead to increased beetle populations. In reviewing Chapters II and III of Volume One, there is no discussion as to why the downed trees and limbs were not burned so as to destroy the eggs mentioned on page 11 of Chapter III. The Final EIS should explain in detail each of the reasons why the downed trees and limbs were not burned in the summer or fall of 1997, or at any time during 1998. The Final EIS should also indicate whether at any time in 1997 and 1998 there were any areas with downed trees or limbs that could have been mechanically destroyed such as with chippers and then burned. If there were such areas, the Final EIS should include data as to the expected cost per acre to perform the work of chipping and then burning. Would such action have destroyed any of the beetle populations? Was this action considered by the Forest Service? The Draft EIS did not mention this method in Chapter III, pages 178 to 186

Response: Environmental Analyses were prepared for harvesting timber damaged in the ice storm of 1996-97 with the intent of reducing the risk of beetle infestations. A portion of the planned harvest was accomplished and some beetle increases were partially abated. Other sales were delayed or stopped by appeals and litigation and therefore timely treatment of this material did not occur. While this sequence of events and activities (or lack of activities) that led up to the epidemic help give some context to the current situation, it provides little aid in understanding the effects of taking action now. Therefore, it wasn't discussed in depth in the FEIS.

Since one of your objectives is to limit expansion of the beetle infestation, perhaps you should consider a quarantine of the Bead Lake basin by construction of a narrow, clear-cut buffer zone around the basin perimeter; i.e., just beyond the skyline as viewed from the lake surface. Mother Nature would handle the inner basin.

Response: Limiting the beetle infestation expansion is not one of our objectives for this project. Because the infestation is so widespread and the beetles are already flying as of April 1999, we would not be able to appreciably dampen the expansion by our harvest and burning activities.

We don't propose to do clearcuts of any kind, and even if we did put a narrow clearcut buffer around the Bead Lake Basin, the beetles are already quite well-distributed both within and outside the basin. They are also pretty good flyers, and would, in all likelihood, fly right through a clearcut if they needed to get to suitable trees on the other side.

As for Mother Nature handling the inner basin, we are only proposing treatment on a relatively small portion of the Bead Lake Basin--Mother Nature will indeed take care of the rest.

VARIABLES AFFECTING THE INFESTATION

Similar Comments There were two comments that stated there wouldn't have been an infestation problem if the Forest Service hadn't been suppressing fire and if the "forests had been properly cleaned up and maintained in the past."

Response: We agree that our past management activities (such as fire suppression) are partly to blame, and we are changing the way we do business in a lot of ways. However, there are other factors that contributed to this infestation. All this is discussed in Chapter II.

Individual Comments
The brief discussion of fungal spores and other beetles does not substantiate the claim that the proposed action must proceed as quickly as possible to maximize economic return. (p.III-239)

Response: A thorough study, including an extensive literature search and consultation with local mills and expert pathologists, was conducted by Evans and Associates (1999) regarding the rate of decay of Douglas-fir killed by Douglas-fir beetles. We have no reason to dispute their findings. The fungi *Cryptoporus volvatus* (pouch fungus) and *Fomitopsis pinicol*a (red belt fungus) do not kill trees but contribute to the deterioration of the wood after trees are killed by the beetle.

Furniss (1965) found Douglas-fir beetle attacks to be fairly unsuccessful after a wildfire. Johnson and Pettinger (1961) found Douglas-fir adult beetles in exposed bark and forest litter and successfully burned them to death. Although, many entomologists believe fire can cause some scorched trees to become more susceptible to insect attack, they recognize this as a short-term problem and generally advocate prescribed fire as a treatment for long-term forest stand insect resistance. Prescribed fire is necessary in forest restoration. Fire practitioners are gaining skill and confidence in introducing fire to remove ladder fuels and lay down fuel for future controlled burns. Using knowledge of plant physiology, timing of burns, and monitoring fuel moisture, managers can thin stands without mechanical manipulation. Because fir needles become tinder-dry in early spring and pine needles remain generally protected, fire professionals can selectively burn and kill firs while retaining pines.

Response: It has been well documented that Douglas-fir beetle populations can increase following fire. At low or endemic levels, Douglas-fir beetles infest scattered trees, including those injured by fire scorch or root disease (Schmitz and Gibson, 1996). Bark beetles, including Douglas-fir beetle, are frequently associated with tree mortality following fire (Amman and Ryan, 1991; Furniss 1965). Douglas-fir have large lateral roots near the ground surface that are often injured by ground fires. This injury may contribute to a tree's susceptibility to attack by Douglas-fir beetles (Amman and Ryan, 1991). Most damaged Douglas-fir trees infested by Douglas-fir beetles after the Yellowstone fires of 1988 had 20% or more stem girdling by fire (Amman & Ryan, 1991). When susceptible trees are abundant, beetle populations can build rapidly and infest adjacent healthy trees (Schmitz and Gibson, 1996; Rasmusssen et al. 1996).

Nowhere in the discussion do we see any mention of the possibility that past fire and/or logging events may have influenced the intensity or pattern of the current bark beetle outbreak through alteration of nutrient availability, organics depletion, or other impacts to area soils. It is also well known, for instance, that root diseases often correlate with nutrient poor or detrimentally impacted soils and beetle outbreaks often start or gravitate to root disease centers. (see... Armillaria Root Disease, USDA Forest Service, Handbook No. 691)

Response: Root disease may be important in maintaining endemic or low beetle populations but during outbreaks beetles are also found in dense stands not impacted by root disease. Also, there is no evidence that beetle outbreaks start from root disease centers. Bark beetle caused tree mortality has been examined in nutrition studies but has not been correlated to nutrient deficient soils.

....the FS failed to adequately disclose that timber harvest methods could increase the incidence of root disease. Douglas-fir beetles are known vectors of fungi known to be pathogenic to Douglas-fir. Certain fungi may be associated with successful mass attack of Douglas-fir. Also, Douglas-fir beetles and other insects may carry root disease pathogens that may be vectored to trees during maturation feeding or unsuccessful attack. Douglas-fir beetles and other insects may vector a particularly virulent plant pathogen known as black-stain root disease. Black-stain root disease may not be host-specific and, once established in a stand, may increase as a problem over the years. Trees declining from black-stain root disease may harbor a succession of insect vectors. Certain logging practices and road construction are known to exacerbate conditions that favor black-stain root disease spread. Harvest and mechanical thinning produce abundant food and breeding sites for several black-stain root disease insect vectors and possibly infection courts for plant pathogens. Also, logging stumps and tree wounds caused by logging operations may produce volatiles that are attractive to bark beetles and other potential plant disease vectors.

Response: While this information is interesting, it is not really relevant to the northern Idaho situation, because the community of experts and scientists that have worked closely in this region have not found black stain to be of major importance in Douglas-fir in northern Idaho. (We have only encountered it rarely, and then it was primarily on pine species, especially when planted "off-site.") All of the citations that were included in this commentor's letter are about research conducted primarily in western Oregon where black stain is indeed an important problem.

It is common knowledge that the Douglas-fir Beetle (in fact all primary bark beetles) kill their hosts with the assistance of blue-stain type fungi which help to clog the tree's nutrient transport system. It is the physical girdling by the insect larvae in combination with these fungi that kill the trees.

There is some concern that partial cutting in areas of root disease (Armillaria sp.) where the residual trees would be primarily Douglas-fir and grand fir, may result in increased mortality of the residual trees because the stumps would serve as additional food sources which have no resistance to colonization or spread of Armillaria. However, if only beetle killed trees are removed, there is no evidence that root diseases behave any differently on root systems of dead trees whether the above ground portion has been removed. The long-term outcome is likely to be the same from beetles or partial cutting--loss of larger, overstory Douglas-fir and its replacement by more Douglas-fir and grand fir. This is actually a strong argument to create even more regeneration harvests, so that other more resistant species could be restored to the ecosystem and is something that we emphasize strongly in insect and disease management training classes.

It has been documented that root diseases play a major role in forest succession in the Coeur d'Alene River Basin. This is largely because of the shift in species composition towards much greater amounts of Douglas-fir and grand fir than was ever here historically (Hagle et al. 1994). Converting forests to the longer lived seral species such as western white pine, ponderosa pine, and western larch is recommended to reduce impacts of root disease and return the forest to a sustainable, functioning ecosystem (Byler and Zimmer-Grove 1990). In the absence of fire or logging and replanting to seral species, the current Douglas-fir beetle outbreak would promote stand conditions similar to what we have now--a preponderance of Douglas-fir and grand fir with their associated insects and diseases.

What needs to be seen and preemptively dealt with, is an "outbreak" of breeding sites suitable to several scolytid species...Broken off Douglas-fir tree tops, uprooted trees, bole sections of downed trees, and Douglas-fir trees with severe "root-sprungs" became infested by Pseudohylesinus nebulosus (Douglas-fir pole beetle), and Douglas-fir Bark Beetle. (The remaining comments suggest that Douglas-fir trees infested with Douglas-fir pole beetles--which infest the tops of trees--are weakening the tree and making it susceptible to Douglas-fir bark beetles).

Response: The Douglas-fir pole beetle commonly attacks thin barked portions of logging slash, wind-thrown trees, and the tops and branches of trees already killed by Douglas-fir beetle (Furniss & Carolin 1980). In the destructive sampling that was conducted in the fall of 1998, we found no Douglas-fir pole beetles in the tops of 65 trees examined (Kegley et al. 1999).

Effects of Weather on Beetles

Similar Comments There were three comments that stated the Forest Service did not adequately discuss the effects of weather on beetle populations. One person was interested in knowing how wet, cool temperatures impact beetle populations. One person felt predictions of further attacks only apply if the next few summers are hot and dry and that "these forecasts are used as justification for taking out green trees at "high risk." Another individual wrote that we should be analyzing the cumulative effects of unusually high temperatures in the summer of 1998, a cold and wet fall and winter, and very cold temperatures of December 1998.

Response: The unusually warm and dry conditions in the summer of 1998 were evidently beneficial to the beetles and not detrimental. The flight period of the beetle was unusually long with new attacks occurring well into September. The number of beetles caught in flight monitoring traps during the summer was nearly equal to the main flight that occurred in the spring (Dr. Ladd Livingston, unpublished data). Also, there was evidence found during population sampling of attacking beetles re-emerging to attack new trees. Douglas-fir beetles will avoid the sun-exposed surfaces of bark and attack only the undersides of trees windthrown in openings. They also prefer trees in dense stands where tree trunks are shaded. So even when temperatures are high, they usually avoid situations where lethal temperature conditions may exist.

Since the beetle population is underneath the bark of Douglas-fir from fall to spring and the beetles have adapted to northern Idaho climate, the cold, wet conditions of the fall and winter, which are not particularly unusual, would not have detrimental effects to the population. Beetles are protected under the bark and, like most insects, have developed physiological defenses against cold temperatures. The cold snap that occurred in December was not severe enough or long enough to cause significant mortality (see temperature discussion in FEIS). Beetles underneath the bark are not exposed to wind and therefore not affected by wind chill. Actual temperatures from the National Weather Station in Spokane during the December cold snap showed that we had two days with low temperatures below zero and only 5 total days of low temperatures in the single digits or slightly below zero (table 1). Limited sampling and observations in March and April 1999 have revealed many live beetles under the bark awaiting warm temperatures conducive to emergence.

Table 1. Low temperatures recorded at the National Weather Station in Spokane, Washington during a cold snap occurring in December 1998.

Date	Low Temperature (degrees Fahrenheit)
Dec. 18, 1998	14
Dec. 19, 1998	3
Dec. 20, 1998	-4
Dec. 21, 1998	-3
Dec. 22, 1998	2
Dec. 23, 1998	6
Dec. 24, 1998	10
Dec. 25, 1998	24

Effects of Management Activities on Beetle Infestation

Similar Comments There were four comments stating they believe that Forest Service management activities (including logging, road building and fire suppression) have contributed to the beetle outbreak. One of these comments is shown below to address some of the details in the comment:

In the "North Zone Staff Notes" for 10/16/98, it is stated that a lot of the (beetle) kill is in areas that are actively managed. Thus it would seem to even a casual observer that there may be a potential direct link from specific past management activity to the present beetle epidemic. Even if many 'managed" areas do not show a preponderant level of infestation it could well be that beetles are choosing pockets of Douglas-fir where existing trees are stressed from insufficient nutrients or other soil impacts owing to fire history (and/or) previous logging activities (high-grading entries, etc.). Discussions in the draft EIS seem to suggest that past logging and forest fires have heavily influenced impacted stands and thus should serve as possible indication that the present infestation is owing to more complex factors than supposed by the (EIS) discussion. However the Forest Service did not, according to our information, conduct any foliar analysis of affected Douglas-fir or (apparently) undertake any comprehensive soil analysis of impacted areas. This, we feel, is necessary.

Response: The staff member who made the comment cited in the North Zone Staff Notes, said that the comment made about beetle-killed trees occurring in areas that are actively managed was in reference to considering prioritizing treatment of those areas because they are already accessible by roads. The comment was not made as an observation that beetles only occur in actively managed areas. There are many infested areas in both National Forests that are not actively managed. Beetles are not normally found in stands that are commercially cut because of the reduced tree density in those stands (Furniss et al. 1981). As susceptible trees are removed by logging or killed by beetles, tree resistance to beetle population expansion mounts (Furniss et al. 1979). Conversations with Dr. Ladd Livingston of the Idaho Department of Lands (IDL) indicates that IDL has had good results in preventing further tree mortality by salvaging attacked trees and thinning the residual stand (Schwandt 1998); a practice that IDL has done routinely for the past 20 years as a successful tool in preventing Douglas-fir beetle-caused tree mortality.

As we have stated, fire suppression has lead to greater numbers of Douglas-fir in stands which historically had a more diverse mix of species. The increase of Douglas-fir has created more hosts for beetles to attack during outbreaks. We do not know of any research that shows road building leads to beetle outbreaks. See the first response in this section under "General Comments" for further information on other variables that affect beetle populations.

Some very preliminary research being done by the Intermountain Forest Tree Nutrition Cooperative is showing a possible link to potassium (K) deficiency and the lack of tree resistance to root diseases. We do not know if this research information on potassium relates to beetle outbreaks. We also do not know of any other research which correlates insufficient nutrients to beetle outbreaks.

Key soil productivity criteria (which includes our best knowledge of the Forests potassium situation), existing conditions, and effects and mitigation measures of this project are covered in chapters II and III of the FEIS. The IPNF is planning to do foliar analysis in cooperation with the Tree Nutrition Cooperative this fall in order to gather more information on our potassium levels, if funding can be obtained.

DISTANCE BEETLES FLY

Similar Comments There were four comments that questioned whether the beetles can really fly very far and spread to other ownerships.

Response: One research study showed evidence of a Douglas-fir beetle flying a distance of 20 miles which does indeed show their potential. However, information about that record flight was followed up by stating that beetles probably won't fly further than they have to. They are regulated by their physiological state (Atkins 1966, 1975). Emerging beetles are strongly attracted to light and also appear to require some flight exercise prior to attack (Graham 1959). Physiological factors affect whether or not another bark beetle, *Ips pini,* respond to pheromones and that affects how far they will fly before stopping to attack a tree or to respond to a pheromone. These physiological factors, including fat content, degree of desiccation, and having air in their ventriculus, varied greatly even between beetles coming from the same tree (Gast et al. 1993). In other words, beetles vary greatly in their flight capacity. This is actually beneficial to the beetles in that it would allow members of a population to exploit nearby as well as more distant susceptible hosts which could enhance their immediate survival as well as species diversity by augmenting outcrossing with other populations (Gast et al. 1993). In marked Douglas-fir beetle release studies, most released beetles were re-captured 3/4 mile and some as far as 4 miles from their release point (Dr. Darrell Ross, unpublished data). Not all emerging Douglas-fir beetles are going to stay within a few meters or even a kilometer or half a mile from the tree in which they developed.

Individual Comments
As for damage by the Douglas-fir beetle- why allow the timber companies to take out old growth and allow the beetle infestation to develop in those trees that might be left standing?

Response: Since the Douglas-fir beetle tends to attack trees that average 14 inches diameter and larger, the beetle-killed trees we would mark for removal would likely be in the larger size classes. Whether we remove trees or not, beetles may still infest any susceptible live Douglas-fir left in the stand. As we've stated before, we know we can't substantially control the beetle infestation. The intent in all harvest areas is to leave as many of the healthy, large old trees as possible.

PREDICTIONS OF CONTINUED ATTACKS

Similar Comments There were four people who said they did not believe the Beetle outbreak would grow as large as predicted or that the amount of trees killed by the beetle would be as high as predicted.

Response: We have found from surveys conducted in the fall of 1998 that the number of successful beetle attacks is high-- 88%. This means that 88% of trees attacked in 1998 will die from a combination of the beetle girdling the phloem and blue stain fungus that the beetle carries invading the sapwood. Beetle population sampling revealed brood to parent ratios are greater than one (more beetles coming out of trees than went in). This is evidence that the Douglas-fir Beetle population is not yet declining (Kegley et al. 1999). It is very likely that new trees will be attacked in 1999 regardless of whether or not we have a droughty summer.

Aerial surveys conducted in September show only a small portion of the infested areas. Only about 1/5 of the IPNF's was flown in the late flight. The flight only identified the currently infested trees that were fading early. Follow-up ground surveys showed there were on average 8 and as many as 19 more green infested trees for every fading tree identified by aerial surveys (Kegley et al. 1999).

Individual Comments
The DFB DEIS failed to disclose the following: (a) There is a high probability that the Douglas-fir beetle outbreak may not grow as large as anticipated by the FS. (b) Droughty conditions sometimes have little effect on Douglas-fir beetle populations. (c) About 40% of attacked trees can be expected to survive. (d) Individual tree survival depends upon that tree's physiological resistance to Douglas-fir beetle infestations and may not be readily predictable. (e) Bark beetle dispersal studies routinely demonstrate that the great majority of emerging bark beetles remain within a few meters of where they emerged. (f) Expected Douglas-fir beetle brood mortality can be immense.

Response: See previous responses in this section for answers to parts a through e of your comments. Regarding your comment on brood mortality: there is a considerable amount of variation in brood mortality, and brood mortality can be immense. Beetle brood production is optimal in previously healthy, windthrown Douglas-fir, especially if the fallen material is shaded (Johnson et al. 1959, Johnson et al. 1961). The large populations of beetles emerging from substantial numbers of windthrown Douglas-fir may attack and kill nearby standing trees (Wright and Lauterbach 1958, Furniss and Carolin 1977). Furniss (1964) found that in standing green trees, mortality was high and variable early in the life of the brood, and that relatively small changes occurred over the winter. Outbreaks collapse in 2 to 4 years because brood success is poor in vigorous hosts. Large populations cannot be sustained unless there are additional fallen trees (Goheen and Hansen 1993).

EFFECT OF BEETLE SPREAD TO PRIVATE LANDS

Similar Comments There were eight comments stating concern about the beetle infestations on National Forest lands spreading to state and private lands. One person mentioned concerns about the potential for catastrophic wildfire which "threatens human lives and property."

Response: We are concerned about the spread of beetle infestations to other land ownerships as well. Unfortunately, the time required to produce an Environmental Impact Statement does not allow us to remove beetle infested trees fast enough to have much effect on controlling the spread of the beetle to other areas. However, we are involved in a study that is using beetle pheromones in areas close to other land ownerships.

The Douglas-fir Beetle Pheromone Study Project proposes 2,000 acres of treatment with antiaggregation pheromone--a chemical which tells the beetles not to attack trees. About 400 acres of this is on National Forest lands with the remainder on private lands. The study hopes to determine if these pheromones are effective in preventing beetle-caused mortality during a serious outbreak. Another part of the study involves the use of aggregation pheromones to attract beetles to areas where the beetles are expected to cause very limited mortality. All of these sites are on National Forest lands.

We requested and were granted an Exemption from Stay of Implementation for 4,000 acres of National Forest lands in the Coeur d'Alene District which allows us to begin preparing and selling timber sale contracts during the appeals process. This could be helpful to be able to reduce fuels and accomplish work in areas close to private lands more quickly.

Individual Comments
If industry has cleaned up its own property, as claimed, their remaining healthy trees will not be susceptible to beetle attack. I am suspicious of the urgency of your logging plan.

Response: Although we hope our actions might help stem the spread of beetles to other land ownerships, the urgency of our proposal has more to do with removing beetle-killed trees on National Forest lands before they deteriorate to recover the wood value. Landowners who have cleaned up storm damaged and weakened Douglas-fir trees on their properties will likely have the least amount of future infestations spread to their lands.

Logging infested trees and removing them from the forest will "vector" these beetles far and wide. It seems that logging will actually greatly increase the range of these beetles and their effects. Logging trucks will be unnatural vectors for the beetles and greatly increase the problem. Have there been any studies on this question? Can you cite literature to assure us that this will not be a problem? What measures will be taken to counteract this problem? Only trees that are certain to die should be removed, and then only if there is a method of transport which will insure that the beetle is not unnaturally spread far and wide.

I am concerned about the handling of infested logs, etc. that leave the forest. Are steps being taken to mitigate the potential impacts of emerging beetles at the mills or other locations where infested logs might accumulate? Or can you assume that there will be no larger Douglas-fir within a mile or so of those locations?

Response (to the previous two comments): Most trees to be removed would be dead Douglas-fir trees from which the beetles have emerged prior to logging activities. This timber would cause no "vectoring" of the Douglas-fir beetle. A lesser portion of the trees to be removed would be infested with beetles and larvae at the time of removal and would be transported to mill sites. Prior to the time of the beetle emergence from the logs, if processing occurs, (i.e. debarking) the beetles and larvae would be killed. If milling cannot be done on these logs prior to emergence, other techniques such as water sprinklers set on log decks, using pheromone attractants in traps, and anti-aggregation pheromones in high risk stands surrounding mill sites could reduce the chance of beetles leaving the log processing plants.

In Chapter III, we have addressed the environmental consequences of beetles spreading from logs at mills. See Environmental Consequences Common to Alternatives B, C, D, E, and F.

Pheromone traps have been used to contain isolated populations of bark beetles including the Douglas-fir beetle in forests (Gibson et al. 1999, Kegley 1998, Shea and Neustein 1995, Ross and Daterman 1994 & 1995, Ross et al. 1996) and ambrosia beetles at log storage and milling sites (Steve Burke, Pherotech, personal communication). It is likely pheromone traps could be used to contain Douglas-fir beetles at mill sites if infested logs are not processed by the spring flight period.

EFFECT OF PROJECT ON RESISTANCE TO BEETLE

Similar Comments There were six comments that questioned whether some of the green Douglas-fir trees proposed to be removed might be genetically resistant to the beetle, and if so, these trees should be retained.

Response: No studies have demonstrated genetic tree resistance to Douglas-fir beetle. There is also no Douglas-fir tree that cannot be killed by the beetle if enough beetles are attracted and attack it (Mal Furniss, personal communication). The Douglas-fir beetle attacks trees in groups. Most often, trees in a group are the same age. But the trees that are successfully attacked are the dominant and co-dominant,

fast growing, superior trees that produce more resin. It takes more beetles to kill the dominant and co-dominant trees, that is, they aren't more susceptible, but they are more attractive to the beetles than intermediate or suppressed trees. Thick phloem is essential to the success of the beetle and thick phloem is found in the bigger trees. Odors of the dominant trees are very important in the attraction of beetles and the beetle pheromone is synergized by tree resins. Trees that survive attack are smaller in diameter and poor producers of resin (Furniss et al. 1981).

Since the composition of terpenes is under strong genetic control in spruce, it is conceivable that genetics may play a role in terpene composition of Douglas-fir. Furniss and others recognized that terpene composition differed among Douglas-fir trees. They theorized that trees containing high amounts of alpha-pinene, a strong synergist of the beetles' aggregative pheromone, would attract more beetles than trees with lower concentrations. They further stated that if we could genetically select Douglas-fir trees containing the resistant mechanism that is universal in live larch, we could have improved preventive methods (Furniss et al. 1981). A problem may be in identifying "resistant" trees. Since beetles often attack high on the tree bole, successful attacks may be missed by sampling from the ground or even with ladders (Kegley et al. 1999). Trees that are unsuccessfully attacked by the beetle may be sufficiently inoculated with the pathogenic fungus, *Ophiostoma pseudotsugae*, to die a few years after beetle attack. Whether or not genetic resistance exists in Douglas-fir, resistant trees are nearly impossible to identify without destructively sampling them. The project proposed in the EIS would not be logging all beetle affected stands so if genetically resistant trees exist, they would not all be removed. Some of the biggest and best trees that are not attacked would be left in many proposed treatments.

FURTHER DOCUMENTATION/ANALYSIS ON DOUGLAS-FIR BEETLE

Individual Comments

Provide additional information regarding Douglas-fir beetle biology, and in particular, the relationship between the beetle and prevalence of other forest diseases and insects as they may affect the economic value of currently infested trees.

Response: Please refer to our response under "General Comments" in this section regarding Douglas-fir Beetle biology. In a report by Evans and Associates (1999) on the deterioration rate of beetle-killed Douglas-fir, they discuss wood deterioration agents such as stains, borers and fungi that can affect the wood value after the beetle has killed the tree. They point out that the "Douglas-fir beetle does not cause direct damage to the wood." The report estimates that volume losses of beetle-killed trees could reach 20 to 30 percent by the third year after death which would result in a value shift from lumber products to pulp.

The DEIS claims that the bug infestation is outside the range of variability, yet a bark beetle infestation in the early 1950s was larger. What basis does the Forest Service have to substantiate the claim that this recent infestation is outside of a historic range?

Response: Thank you for drawing this error to our attention. At this time we do not have the data to support this statement. We have revised this statement to read "Due to the high levels of Douglas-fir encroachment from the exclusion of wildfire, high value species logging, and blister rust introduction, recent beetle outbreaks have the potential to expand to a level outside the beetle's range of natural variation (IPNF 1998)." This statement reflects that the amount of Douglas-fir is outside the range of variability, not the beetle infestation.

The DEIS lacks a discussion of the positive values of bark beetles in the forest and the natural predators for the beetle. The DEIS briefly mentions that bark beetle effects are good for many species of wildlife and not for others, disclosing that percent canopy closure would be the factor. It seems the Forest Service is making general assumptions about trees falling over because they have or are likely to be infected with beetles and then projecting that to an extremely large scale across the forest. Again, the data supporting these assumptions is lacking. The DEIS should discloses that this is only an assumption. Large dead trees will fall, but likely over a long duration in the mean time creating a snag heaven for

wildlife and for the wide-ranging species which need such old forest structures for survival. The DEIS addresses the bark beetle activity as if there is only one realistic solution to log. Weather, birds which eat bark beetles, and the roles of other forest cycling events are barely considered; such factors should be more fully discussed and considered in the decision making process. We ask for an alternative which uses prescribed burning and monitoring of the bark beetle's activity as the basis of any Forest Service management.

Response: Natural predators can cause a lot of mortality in developing Douglas-fir beetle broods but female beetles lay hundreds of eggs to ensure their survival. The number of beetles that do survive are apparently enough to cause tree mortality. Also, natural predators do not prevent outbreaks from occurring. They also have not been implicated in the collapse of Douglas-fir beetle outbreaks. M.M. Furniss, one of the authors in the publication cited by the commentor (Marsden et al. 1981), has stated that numbers of natural predators appear to be independent of prey density and their influence increases as beetle numbers decline (Furniss et al. 1979, 1981). M.M. Furniss is a reputed expert on Douglas-fir beetles, having spent much of his career studying them. Populations of natural enemies and their prey frequently oscillate out of phase. Natural enemy numbers often lag behind those of their prey (Jewett, unpublished data).

As discussed in Chapter III in the Fuels and Fire Behavior section, trees that are killed by the beetle will stand for several years. By 15 years, all branches and large limbs will have fallen, and approximately 50 percent of the snags will have fallen. Within 35 years, greater than 90 percent of the snags will have fallen (reference USDA 1998b). As you and others requested, we created and analyzed Alternative G to accomplish restoration objectives using fire and no commercial timber harvest.

The FS failed to adequately disclose that its assumption that Douglas-fir stand overstocking is a primary factor for Douglas-fir beetle outbreaks and is best addressed using harvest methods is a conclusory statement insufficiently supported by data. Throughout the DFB DEIS, the Forest Service assumes that overstocked stands are the primary cause of Douglas-fir beetle outbreak. Such an assumption leads to four problems.

Response: We do not assume that overstocked stands are the primary cause of the Douglas-fir beetle outbreak. The stand susceptibility model that was used in predicting additional mortality did include, as one of several factors, stocking density of Douglas-fir. The model is based on the principle that higher Douglas-fir stocking increases the Douglas-fir beetle hazard. The use of Douglas-fir stocking as a risk factor in this model is something different than contending that stands are overstocked, compared to historic conditions.

Annual insect and disease detection flights and observations by Forest Service Entomologists from the Coeur d'Alene office indicate endemic levels of Douglas-fir beetles have recently been high on the IPNF (personal communication-Sandy Kegley, Entomologist-USFS). In addition, historic data does suggest that Douglas-fir cover types have increased across the landscape on this Forest. This does not suggest epidemics are unusual. There were historic beetle outbreaks following similar weather events.

The FS failed to adequately disclose that silvicultural and direct control responses to insect outbreaks are often considered controversial and disputed by the community of experts and scientists.

Experts such as entomologists, economists and aquatic scientists probably don't support logging to get rid of this problem. Even forest pathologists probably won't support logging as a solution to this problem. Go ask working experts in these fields and see for yourselves. Would most active entomologists really support your claim that 90% of the trees will die from the beetle and no other cause?

Response (to previous two comments): On December 15, 1998, 35 scientists and specialists from the western United States met to discuss the current level of knowledge regarding several aspects of the Douglas-fir beetle situation in northern Idaho. Attendees included forest entomologists, forest pathologists, silviculturists, state and federal agency administrators, and other specialists. A copy of the notes from this meeting are in the project file.

Actions proposed in this project are not an attempt to control the Douglas-fir beetle outbreak. This is stated in Chapter I, Introduction. A study by area entomologists (Kegley et al. 1999) indicates that 88% of the trees attacked by Douglas-fir beetles in 1998 were dead or dying.

RISK AND HAZARD RATINGS

Individual Comments

The Forest Service failed to adequately disclose the methods and concomitant scientific uncertainty, used in establishing a risk analysis of stands and a Douglas-fir beetle hazard ratings. The Forest Service failed to adequately disclose how Douglas-fir beetle risk and hazard areas were determined...the Forest Service presents no detailed analysis, no general summary, or no meaningful explanation of how these critical determinations were made. Apparently, a "model" was used to make these determinations, but this "model" is not disclosed...Apparently, projected Douglas-fir beetle infestations are based on an undisclosed "risk analysis of stands" Also, we can deduce that an undisclosed model developed by Forest Service (Region One) entomologists produced the "Douglas-fir Beetle hazard ratings" and predicted the Douglas-fir beetle risk and hazard areas. The DFB DEIS does not take the time to explain to the reader the differences between risk and hazard ratings...A perusal of the references reveals limited clues to how the risk analysis and Douglas-fir beetle hazard rating might have been developed. Several published references pertain directly to the historic occurrence of Douglas-fir beetle. One citation, by Furniss, Livingston and McGregor published in 1981, does provide information for the development of a stand susceptibility classification for Douglas-fir beetle. However, the Forest Service did not reveal whether it used these citations in establishing an adequate field-use Douglas-fir beetle risk analysis or hazard rating. Also, the Forest Service did not disclose whether internal FS documents established the risk analysis and hazard rating. Instead, the Forest Service uses unreferenced and conclusory statements that thusly appear unsupported by data that the Forest Service is obliged to reveal

Response: The recently completed "Douglas-fir Beetle Hazard Rating System Using the Oracle Database and the Forest Service IBM Platform" by Randall and Tensmeyer (located in the project file), explains the logic behind the hazard rating used for this analysis. A combination of hazard and beetle population data enabled the IPNF to begin to assess the risk of stands being attacked (please refer to Chapter I, section entitled "1998 Outbreak Incident Assessment Team Report").

In order to have an outbreak three elements are necessary: 1) susceptible stands--which are characterized through hazard rating; 2) beetle pressure, (the magnitude of a beetle population affecting a stand)--which is assessed by population sampling; and 3) favorable environment to enable beetle populations to build and/or maintain (in the case of the Douglas-fir beetle, this would include a "trigger" event, such as windthrow, defoliation, drought, fire, etc. which creates suitable breeding material allowing the populations to build).

The hazard rating analysis completed by Randall and Tensmeyer only addresses one element--the abundance of susceptible stands. Hazard is best defined as susceptibility, or the inherent characteristics or qualities of a stand of trees that affect its likelihood of attack and damage by a beetle population (Shore and Safranyik 1992).

Watersheds having a large number of stands with a moderate to high hazard rating for potential beetle infestation, but without epidemic numbers of beetles in the fall of 1998 were called "hazard areas." These areas were not included in the proposed action in the Douglas-fir Beetle EIS, since they had lower probability of attack during the current epidemic. Eleven hazard areas were identified in the assessment.

Groups of watersheds that had high beetle populations were considered "risk areas" and were included in the proposed action in the Douglas-fir Beetle Draft EIS. Nine risk areas were identified in the assessment.

The Outbreak Incident Assessment Team also addressed the second element of beetle pressure. Beetle pressure relates to the likelihood of a beetle population entering a given stand. With information on the proximity of beetles to hazard stands, and beetle population trends (increasing or decreasing), the Forest was able to address "risk." Risk is defined as the short-term expectation of tree mortality in a stand as a result of beetle infestation, and is a function of stand hazard and "beetle pressure" (Shore and Safranyik 1992).

In regard to "concomitant scientific uncertainty" in risk and hazard ratings: there is no guarantee that beetles will materialize in any particular high hazard stand at any given time regardless of the amount of beetle pressure on that stand. The third element of the outbreak, environmental factors like weather, could result in a beetle population collapse prior to beetles entering the stand, or the beetles may simply not enter an area for reasons that are not readily apparent. When beetle pressure is high, however, and susceptible stands are abundant, past experience has demonstrated that beetles will attack and kill additional trees, and kill more of those trees in higher hazard stands. Surveys conducted by Kegley et al. (1999) in the fall of 1998 demonstrate that beetle populations are not yet declining, and aerial surveys from late 1998 which documented 1998 DFB attacks, showed that beetle killed trees were wide spread across the landscape, both of these factors demonstrate high "beetle pressure".

The Douglas-fir beetle hazard rating is still a work in process. Though the hazard rating system is based upon published relationships between site and stand factors and associated damage caused by the Douglas-fir beetle, field validation is still ongoing. The system used on the IPNF is consistent with other systems being used , and preliminary validations of these systems have shown them to be useful (Weatherby and Thier 1992, Steele et al. 1996, Bark Beetle Research at the Pacific Forestry Center).

MISCELLANEOUS COMMENTS ON BEETLE

Individual Comments

According to your Draft EIS Summary, acting now is the only way to get any revenue from the dying Douglas-fir trees. DF beetles are said to be the culprit, but then red belt fungus is brought up as a concern in revenue. How much acreage on all ranger districts has been evaluated for red belt fungus? Do the Forests see that trees are dying because of the combination of red belt fungus and the bark beetle? Approximately what percent of each ranger district is comprised of the beetle outbreaks? Approximately what percent of each ranger district is actually killed trees vs. percent projected, or extrapolated, kill?

Response: Red belt fungus is generally a saprophytic fungus that rarely is found on live trees (Evans, 1998). The Douglas-fir beetle is the killing agent of the Douglas-fir trees and the red belt fungus is the agent that degrades the wood value through heart rot after the tree is killed by the Douglas-fir beetle. Red belt fungus is a very common fungus and is found throughout the project area. The FEIS further clarifies the effects of red belt fungus in Chapter I.

Aerial detection flights indicated there were approximately 23,000 acres of trees in the IPNF and approximately 800 acres on the Newport District of the Colville NF that showed visible crown symptoms of infestation at the time of the flight. Not all infested trees were showing symptoms and, in fact, studies by entomologists in the fall of 1998 indicated there were an average of 8 infested trees that showed no symptoms for each infested tree that did show crown symptoms. Therefore, not all areas with beetle infestation may have been detected in aerial flights.

In the Coeur d'Alene River Ranger District of the IPNF, based on aerial surveys and field reconnaissance, there are approximately 15,000 acres of National Forest Lands within the six analysis areas that currently have Douglas-fir beetle caused mortality. This is approximately 10% of the six analysis areas and approximately 2% of the Coeur d'Alene River District. Based on information from area entomologists, beetle populations are probably at their peak and additional mortality will occur over the next several

years. It is estimated that 26,700 acres will be infested within the project area by the time the outbreak is over. This is approximately 18% of the six analysis areas and approximately 4% of the District.

In the Priest Lake Ranger District of the IPNF, based on aerial surveys and field reconnaissance, there are approximately 7,900 acres of National Forest Lands within the two analysis areas that currently have Douglas-fir beetle caused mortality. This is approximately 5% of the two analysis areas and approximately 2% of the Priest Lake District. It is estimated that 11,250 acres will be infested within the project area by the time the outbreak is over. This is approximately 8% of the two analysis areas and approximately 3% of the District.

On the Newport Ranger District of the Colville NF, based on aerial surveys and field reconnaissance, there are approximately 800 acres of National Forest Lands within the Analysis Area that currently have Douglas-fir beetle caused mortality. This is approximately 1% of the analysis area and less than 1% of the Newport District. Based on information from area entomologists, beetle populations are probably at their peak and additional mortality will occur over the next several years. It is estimated that 5,300 acres will be infested within the analysis area by the time the outbreak is over. This is approximately 9% of the analysis area and approximately 5% of the east side of the District.

There are areas of beetle caused mortality outside of all the project areas. Although there may be serious mortality in localized areas due to these infestations they are not expected to cause serious mortality over large areas.

EIS Documentation And Analysis

Similar Comments Two general comments were received that stated a good job of planning needs to be done.

Response: We agree. This EIS follows the National Environmental Policy Act (NEPA, a procedural law which requires federal agencies to analyze and consider the potential effects of an action, and disclose those effects to the public). As part of this planning effort, various alternatives were developed to examine different strategies to meet the purpose and need for the action.

ALTERNATIVES

Alternative A

Similar Comments There were 29 similar comments that stated they were in favor of Alternative A (no action), wanted the Forest Service to stop the project, or said "let nature take its course." Of those, some said Alternative A would be the best alternative to "let the forests heal themselves"-- that the proposed logging and road building would do more damage to the environment than the beetle would.

There was only one commentor that specifically stated they were not in favor of Alternative A, because adding beetle killed trees to the existing fuels would "set the stage for a catastrophic wildfire" that would impact important resources and "will assure the loss of Douglas-fir as a component in the grand fir and hemlock/cedar types."

Response: See the Alternative Comparison Summary in Chapter II to see what effects Alternative A would have in the project area.

Individual Comments
"The forests are not going to disappear, since they are adapted to respond to insect outbreaks". Because very little is understood about the role of natural disturbance in the balance of forested ecosystems, more research is necessary and should be accomplished through a no extraction alternative establishing a designated study and monitoring area. There have been numerous calls from the scientific community to develop a no action alternatives in order to study how large an epidemic will be produced, what type of trees will dominate new forest growth, and the impacts of increased water runoff on fisheries and other resources. These pleas have been highlighted in various publications, most notably the Washington Post (February 2, 1998).

Response: Alternative A, the No-Action Alternative, is based on decades of research about a variety of factors that influence forest conditions. Studies such as you suggest are outside the scope of this project. There are some studies ongoing to monitor the current infestation and these studies will be looking at those infestation areas we are not proposing to treat.

The No Action alternative does not provide for a clear understanding of what would occur if there were to be no change from current management direction or the current level of management intensity. For example, suggesting that management of the forest resource would not be initiated at this time (p. II-8) is unclear given that there are reasonably foreseeable and/or existing actions that could affect the Douglas-fir beetle infestation (Volume II, Appendix E), and these previously planned and ongoing activities are often referenced in subsequent discussions. Consequently, Alternative A (No Action) should be revised to fully integrate the actual or anticipated consequences of reasonably foreseeable and/or existing actions, as well as other reasonable courses which could occur within the scope of such actions.

Response: You are correct in saying there are other ongoing and reasonably foreseeable activities occurring within the analysis area and, as you say, they are discussed throughout the document and listed in the appendices. The description of the No Action Alternative in Chapter II , as with the other alternatives, is meant to describe what would occur or not occur within the scope of this decision if this alternative were selected. The effects of these other activities are "fully integrated" in the cumulative effects discussions for each alternative in Chapter III of the FEIS, but these other activities themselves are outside the scope of any decision to be made here and therefore aren't described as part of the alternatives. For the FEIS, the description of Alternative A has been revised to reflect the difference between the alternatives and other reasonably foreseeable activities.

Alternative A (Newport Ranger District)

Similar Comments There were two comments that stated they opposed any alternative except Alternative A in the Bead Lake Basin. These comments do not warrant a response but have been considered by the Colville National Forest Supervisor.

Individual Comments
I notice that on the Newport District the No Action Alternative does not vary significantly from the Action Alternatives when viewed in terms of the percentage of Douglas fir that will remain in the forest after the infestation has run its course.

Response: You are correct that none of the action alternatives change the resulting amount of Douglas-fir on the forest by much. The reason it doesn't is because most of the treatments proposed are "selective" harvests (partial cuts) rather than regeneration harvests. Because the majority of the selective harvests are salvage, which only removes the dead and dying trees, the overall species composition doesn't change much as a result of the harvest. In most stands that we propose to treat, the majority of the trees are Douglas-fir. So even though the beetle kills a lot of Douglas-fir, it kills the larger ones, leaving a lot of smaller Douglas-fir in the stand in most cases. In some cases there are enough seral species (pines and larch) in the stand (along with the smaller Douglas-fir) that we can thin out the smaller fir and still have a stand with adequate numbers of trees to meet requirements for wildlife cover and the intent of our "Eastside Screen" (see Chapter I, Current Law and Forest Plan Direction). In many other stands, refraining from

doing a regeneration harvest means that the majority of the trees left in the stand would be Douglas-fir because that is mostly what is out there to leave.

Even though the species composition is not changing much as a result of the action alternatives, the fuel reduction in those stands would give the trees a better chance of surviving fire.

Alternative B

Similar Comments There were five comments about Alternative B. Three indicated they supported or accept Alternative B and one stated they believed Alternative B was a "middle of the road approach" that fails to deal with the problem of too much Douglas-fir and loss of white pine forests. One said they prefer B but would support Alternative D. There were no comments warranting a response.

Alternative C

Similar Comments There were six comments about Alternative C. Five were in support of C primarily because no new roads would be constructed with that Alternative. One comment indicated they would support C as long as clearcuts were small and limited (see responses under "Clearcutting"). Another comment indicated that C was not preferable because "we recognize the need for road construction for timber salvage." There were no comments warranting a response.

Alternative D

Similar Comments There were 420 comments in support or acceptance of Alternative D (not to be confused with support for the entire project). One of those said they accept D if there is no clearcutting. Others said they felt D was the most aggressive approach out of all the alternatives and it allowed the flexibility to treat new infestations as they occur. Several said they felt Alternative D was the best to help control the beetle infestation.

Response: For those who stated they felt Alternative D was the best to control the beetle infestation, this has not been the intent of this project. See our response under "Controlling the Beetle Infestation" in the Douglas-fir Beetle response to comments section later in this appendix for further information.

Similar Comments There were 10 similar comments expressing concern about or opposition to Alternative D (not to be confused with opposition to the entire project). Six people commented that Alternative D proposes too much logging and road building. Four commented that the alternative proposes too little by not treating enough of the infested stands. None of these comments warrant a response.

Individual Comments
I strongly support the harvest planned in Alternative D. However, I do not feel that the analysis adequately addresses the impacts of the proposed road closures associated with this alternative.

Response: Additional analysis has been included in the FEIS. The Recreation/Access section in Chapter III describes the effects of proposed new road restrictions. Open road densities are discussed within the Wildlife section of Chapter III. These have been summarized in Chapter II, Summary of Effects. Also see the maps which identify proposed new road restrictions. Appendix D provides a list of roads, their current conditions and proposed treatments.

We believe salvage of dead and dying trees, where it can be accomplished without creating significant long or short term risks to fish and wildlife, is appropriate under the circumstances. After our initial meetings with the Forest Service on the beetle infestation, it was our understanding that salvage would be low risk, use either existing roads and possibly

only a very limited number of miles of temporary spur roads and that opportunities to conduct restoration activities would be funded to the level possible by timber sale receipts and as a result of improvements to existing roads (i.e., replacing undersized culverts and restoring fish passage where existing culverts create barriers). We also encouraged examining opportunities to use controlled burns to alleviate fuel build-ups in areas where it would also benefit big game. Under this scenario, we believe the salvage creates a "win-win" situation. We believe the preferred alternative, however, poses unacceptable levels of risk in several watersheds, and we are particularly concerned about the apparent net increase in drivable road mileage when an overabundance of roads has, in our view, constituted the single greatest impact to fish and wildlife on the District.

Response: Ecosystem and wildlife burns were considered in alternative D, F and G on the Coeur d'Alene District. Alternative D (preferred alternative in the DEIS) was modified between draft and final based on public comments and internal concerns. An example of the changes is the reduction in new system road miles from 20.8 miles to 4.9 miles. More opportunities for aquatic restoration were also included between the draft and final for all alternatives. There is actually a net decrease in drivable road miles for all alternatives in this project. Most of the roads being closed are dead-end spur roads and are being closed for wildlife security. Many of the aquatic restoration activities are proposed on roads that are already brushed in or closed to vehicles.

I am concerned that Alternative D can be used as an excuse to further harvest trees near streams and lakes.

Response: All harvest areas in all the action alternatives are designed to meet the guidelines of the Inland Native Fish Strategy which requires protective no-harvest areas by all waterbodies (see Chapter II, Design Criteria).

Alternative E

Individual Comments

"Alternative E will have the effect of speeding up the natural succession process by selective harvest of Douglas fir. Most of North Idaho is a grand fir, cedar, or hemlock forest type. We have lost most of the pine component from these forests. Now we are in danger of losing the Douglas fir and Western larch component. Emphasis on selective harvest may sound good to the uninformed, but it does not alter the natural succession process toward forests of pure tolerant species."

Response: We agree with your assessment of Alternative E with one exception. We are not seeing a loss of Douglas-fir. Instead, we are finding that the high percentages of Douglas-fir in stands that used to have more pines and larch are succumbing to insects and root disease. The Douglas-fir is regenerating in these areas, but they are often not reaching maturity when they succumb to root disease.

For the Coeur d'Alene Districts I support Alternative E, which would remove only dead trees and would not treat designated old-growth management stands. This Alternative appears the best to maintain the visual qualities and salvages infested trees. The effects of clear-cut logging under other alternatives would be visible for 20-30 years and especially severe in the Hayden Lake area. Efforts to replant would not necessarily even take place before a 5 year period.

Response: There is no clearcutting planned in any alternatives (see the definition of "regeneration harvest" located on the "Explanations of Terminology" card that accompanies the FEIS). Clearcutting involves removing all the trees in a stand. Our proposed regeneration harvests would be leaving clumps and patches of trees. Some of these stands would appear more open after treatment, but would not be completely bare. Chapter II has a discussion of the mitigation measures that would be used for scenery/visual quality. We are required by law to have planted stands regenerating within five years.

Alternative F

Individual Comments
Limit logging to the urban/wildland interface (within 1/4 - 1/2 mile) of human habitation.

I would most favor alt C & F as road construction is limited, as long as clearcuts are small and limited. (This comment is listed under Alternatives C and F.)

Response (to the previous two comments): Alternative F is the alternative that was created to address areas along the wildland/urban interface. In the DEIS, it only applied to the Coeur d'Alene River Ranger District. We have since expanded it to include the Priest Lake and Newport Ranger Districts.

There is no clearcutting planned in any alternatives (see the definition of "regeneration harvest" located on the "Explanations of Terminology" card that accompanies the FEIS). Clearcutting involves removing all the trees in a stand. Our proposed regeneration harvests would be leaving clumps and patches of trees. Some of these stands would appear more open after treatment, but not completely bare.

Between the DEIS and the FEIS the amount of road construction proposed has been greatly reduced.

Alternative F sounds good as far as it goes. IWIT agrees with the protection of private property. However, the problem goes beyond the use of fuel breaks. Considering the fuel loading involved, IWIT wonders how effective fuel breaks will be in the catastrophic wildfire that is probable. IWIT feels the emphasis should be on restoring ecological balance to the forest in the project area. IWIT also feels that the needs of schools and counties should take precedence over what could prove to be an ineffective effort.

Response: For further information on fuel breaks, see the response to comments for that topic later in this appendix. The purpose and need for this project is to begin restoring ecological balance through vegetation and watershed restoration activities. The alternatives all propose a range of restoration work with Alternative D providing the most and, of the action alternatives, Alternative G providing the least.

We understand that you believe the timber should be harvested and generate payments to counties rather than burn in the catastrophic wildfire you say is probable. As we indicate in the FEIS this project can help reduce the potential for wildfires in the areas where management activities occur. However, it will not reduce the risk of large catastrophic fires.

Suggested New Alternatives

Similar Comments There were eight similar comments suggesting we consider a "restoration only" alternative. Four of these said this type of alternative should not include any commercial logging or road building. Three of these specifically mentioned including the use of prescribed fire with such an alternative. One said in addition to a no logging, restoration only alternative, we should consider a similar alternative that includes "no cutting of trees." Another said a restoration only alternative "would likely involve lots of cutting (rearrangement of fuels with chainsaws, for example), but no commercial logging. One person said we should focus on restoring the watershed.

Response: Alternative G was created between the Draft and Final EISs to address the request for a "restoration only" alternative. Another alternative (the "fire restoration alternative") was considered that would treat fuel accumulations in stands affected by the Douglas-fir Beetle with prescribed fire. The effects of this treatment were not acceptable because they didn't meet the purpose and need, therefore the alternative was considered but not in detail (see Chapter II, Alternatives Considered But Eliminated). However, some features from this alternative were included in Alternative G. These features include stands that contain proper species composition and could be trended towards desired structure and stocking levels. Alternative G includes vegetation and watershed restoration activities and no timber extraction.)

Individual Comments

The range of alternative suggested for analysis did not include the alternative suggested in the scoping comments provided by the Ecology Center in their December 16, 1998 letter. The alternative suggested deals with vegetation--not just watershed rehabilitation. Elsewhere in these comments we refer to options for restoration not considered in the DEIS's range of alternatives.

Response: Although we recognized your suggested alternative, we missed that it included a vegetation restoration component. We clarified this with you in a phone call on March 24, 1999. As a result of this comment, we have created Alternative G (see Chapter II).

We encourage the District to modify alternatives and to develop an alternative which maximizes watershed recovery opportunities, minimizes additional road construction and long term increases in motorized access, and minimizes risks to fish and wildlife. One suggestion is to modify roads along Hayden Creek tributaries. In particular, we recommend post-project removal of riparian roads and roads with high numbers of stream crossings which are proposed for reconstruction and incorporation of a plan to ensure that previously un-driveable roads remain closed to motorized access. We appreciate the ongoing efforts to reduce the amount of proposed new permanent roads under Alternative D.

Response: You have described many of the design criteria that were used to develop the range of alternatives. Alternatives have also been modified between draft and final based on numerous comments, as well as internal concerns. Proposed miles of new system roads were reduced in Alternative D from 20.8 to 4.9 miles. (Refer to Chapter II for alternative descriptions and statistics.) Alternative D provides the most aquatic restoration opportunities, primarily because it would provide the most dollars to put back into restoration, and it would use more roads that could be upgraded or reconstructed to benefit aquatics.

Roads that are currently closed to traffic would be closed following post sale activities under all action alternatives. Any culverts that must be installed for sale access would be pulled after use as well. Your suggestion to modify roads along Hayden tributaries has been considered. Jim Creek road would be reconstructed to minimum standards with this project, and then obliterated after use. Several other old roads up creek bottoms in North Fork Hayden Creek would also be scheduled for obliteration work. Please refer to Appendix D for road work.

You expressed concern about long-term increases in motorized access on the district. In addition to the alternative modifications described above for this project, we would like to tell you about some other work the district has been involved with that addresses your concern. The Coeur d'Alene River Ranger District has been working for some time on an Access Management Environmental Assessment. The development of this EA used a number of public involvement sessions and took a district-wide look at access management issues. Copies of this EA are available from the district.

But the DEIS action alternatives do not prioritize where stream restoration should take place, in fact restoration is only a secondary output of the timber sale. Funding is contingent on successful contract negotiations, selling of these sales in a depressed market, and unrealistic timber prices. If restoration is truly a purpose of this project there should be a stand alone restoration alternative, with sources of guaranteed funding included.

Response: Restoration (aquatic, vegetation, and fuels reductions) within beetle infestation areas is the focus of the purpose and need for this project and is not meant to be secondary to "timber outputs." We have tried to make it clear that the intent is to use timber harvest and the recovered value as the primary means and tool to accomplish this restoration. Appendix D has been added to the FEIS to help display the manner in which each watershed (road segment) improvement activity is intended to be accomplished and the financial analysis in Chapter III has been rerun to help determine the viability of this approach. Also, please note that as described in the descriptions of alternatives B through F and in Appendix D, the aquatic restoration work proposed and shown on the maps is not dependant on additional "bid up" of these sales (i.e. they are not dependent on less certain "profits" from the sales). The timber market has stabilized over the last several months and prices used in the economic analysis were based on recent

averages. Alternative G was developed based on response to public comment to address a "restoration only" alternative which doesn't include commercial harvest.

May I suggest a plan to achieve water quality with a program to recover and restore watersheds and to secure habitat sanctuary areas for the caribou, northern bog lemming, lynx, fisher, wolverine, pine martens and northern goshawk. To develop a stream riparian areas conservation plan with restoration and to fully protect all old-growth with a fish plant wildlife habitat preservation program.

Response: Design criteria and mitigation measures have been developed as part of this proposal (see Chapter II) to maintain or protect a variety of resources. Please note that watershed restoration is part of the purpose and need for this project. Establishing or developing habitat sanctuary areas and programs is generally beyond the scope of this project. Effects of the proposal on the resources you are concerned about are displayed throughout Chapter III.

In the FEIS would you prepare and include an analysis of an alternative which is a combination of Alternative C and E? Combating the beetle-caused damage by using only existing roads and only harvesting dead or dying trees would be a viable way to address the problem. The potential damage from new roads outweighs any potential benefits from trying to counter beetle damage by building and using them and then not being able to properly care for them.

Response: Any number of combinations of alternatives could take place through the analysis phase of this EIS, making it a very cumbersome document. In this case, the decisionmaker has the option to choose Alternative E and not build any new roads (as Alternative C proposes). This choice could be made in the Record of Decision and does not necessarily require separate tracking through this EIS.

Consider working with local law enforcement and the judiciary to use inmate labor programs to harvest the dead wood or infected trees that are of such concern. Offer the timber, preharvested, at multiple local depositories for use by local residents to cut, split, and haul off to stock up as a firewood security against mounting Y2K fears.

Response: The Forest Service has periodically used inmates for special projects on the National Forest. They have piled slash, built trail, fought fire, and performed other work projects. These activities have been coordinated through state correctional programs.

A majority of the area lies away from existing roads and would require specialized equipment to move and transport the logs, so your idea would be difficult to implement. Moreover, your proposal also would not improve watershed conditions by removing or reconstructing roads which is an important part of this project.

Because of the infestation, there will be increased firewood opportunities for local residents.

"Who proposed the "Vegetative Restoration Only" alternative (II-31)?"

Response: When commenting on our project proposal, four individuals asked that we consider not undertaking the watershed and road restoration work we have proposed because they felt the complexity of the project would delay the vegetation restoration activities. The four individuals were David Hunt, Mick Vaagen, Maurice Williamson and Mike Fish.

The logging operation would be acceptable if they did selective harvesting instead of clearcutting and did not take out any uninfested trees. If necessary controlled burning would be a possible alternative.

Response: No clearcutting is proposed for this project. See the definitions for harvest prescriptions located on the "Explanations of Terminology" card that accompanies the FEIS. Alternative G addresses comments about using controlled burning as an alternative.

ENVIRONMENTAL ANALYSIS

Similar Comments Two general comments were received stating concern about the effects of the proposed activities on a variety of forest resources.

Response: The effects of the proposed activities to various resources are included in Chapter III of the FEIS and supporting documentation.

Individual Comments
I feel that the FS will violate the National Forest Management Act by failing to collect necessary species data before approving this sale.

Response: The FEIS documents our analysis of all relevant plant and animal species that could potentially be affected by this project. In addition, Chapter II describes mitigation measures that would occur prior to beginning any activities which could potentially affect these species.

I would encourage you to utilize the information available from other USFS districts in regard to the treatment/harvesting of beetle infestations. Districts in central and southern Idaho have been confronted with the same problems you face and could be of considerable help to you.

Response: The Boise National Forest recently went through a similar project. We have been in contact with them regarding their beetle infestation.

We do feel that to eliminate 2480 acres of treatment may not be necessary and we respectfully request that the Forest Service analyze all of it's options before deleting treatment on these acres (i.e. temporary roads, helicopter logging, etc.).

Response: The 2,480 acres referred to in this comment are in Fernan and Wolf Lodge creek drainages. The alternatives in these watersheds were modified to include more restoration activities between draft and final. Logging systems were also adjusted so that no acres were deleted in the proposed harvest units for the final EIS.

Page II-10, 2nd paragraph, 5th sentence: How can road repair work under watershed restoration occur in a roadless area? If an area is roadless, it's not supposed to have any roads in it in the first place. Page II-12, 8th paragraph, last sentence: Again, how can this work be done in a roadless area where there aren't supposed to be any roads?

Response: Watershed restoration activities within roadless area designation were dropped between draft and final. While we agree that the intent of roadless is to have no roads in it, when these areas were delineated in the Roadless Area Review and Evaluation (RARE II) process, old brushed in roads were sometimes included within these boundaries. Such is the case in Hopkins Creek.

Third paragraph, last sentence: How about including these prescribed burning areas on the maps used to illustrate the alternative?

Response: The prescribed burning outside of harvest units was dropped for the FEIS under Alternative B. Alternatives F & G would include the prescribed burning, and are shown on the FEIS map.

Page II-13, 1st paragraph, 2nd sentence: Can Alternative D be used in these areas, will it have to be modified there, or what?

Response: The "areas" that you refer to as cited in the draft are dry site old growth stands. Treatment of these areas is only proposed for such stands in the Priest Lake Ranger District in all alternatives except A and E. Please refer to Chapter II for details of activities in dry site old growth stands.

Page II-16, 3rd paragraph, 3rd paragraph, last sentence: What are the standards for successful regeneration?

Response: There are two standards which vary by prescription and habitat type where the planting is being done. The standards are species mix, and number of trees per acre. Species mix is dictated by prescription on each habitat type, and trees per acre vary from 200 on very dry sites to 300 on most of the habitat types that involve Douglas-fir.

Page II-23, Yarding Criteria section, 1st item, 2d sentence: The wording seems garbled and the meaning of the statement is unclear.

Response: The sentence should read "concentrated areas of disturbance may require mulching and seeding."

Page III-38, 4th paragraph: The last sentence should read: "...over the long term but will impact visual quality in the short term." ...Page III-260, 5th paragraph: Selective logging with no more than 50 percent crown removal should be used in these regeneration units so that visual quality objectives are met.

Response: Please refer to Scenery Section in Chapter III of the FEIS. Units would impact short term visuals around Hayden Lake. Changes were made between the draft and final EISs to jackpot burn the regeneration units instead of using straight fire lines and underburns. There would still be openings that are created by the beetle, but it is the burning that tends to create geometric units that are objectionable to many people who view them.

Page III-62, 1st paragraph, last sentence: Will these sediment sources be rehabilitated?

Response: When the Forest Plan was done and drainages were identified as "Scheduled with Mitigation," the sediment sources were usually not identified. During the draft EIS, field crews identified areas of concern such as encroaching roads, fish passage barriers, and undersized culverts. These sources are analyzed and discussed in Chapter III - Hydrology and Fisheries section. Appendix D discusses what work would be implemented by each of the alternatives.

Page III-239, 3d paragraph, 2d sentence: This sounds like high grading by harvesting the larger, more economically valuable trees. Hasn't there been enough of that in the past? That irresponsible activity is partially responsible for the forest's current vulnerability to insect population increases and attacks. Instead of more of the same, you should be thinning smaller material to allow for healthier stands to develop. If not, there will be more insect problems and stand replacing fires.

Response: The primary reason larger trees could be harvested is that Douglas-fir beetles tend to attack trees larger than 14 inches in diameter. While these large dead trees are proposed for salvage, where additional green trees are proposed for harvest, they are the smaller diameter trees in the stand. We propose to leave healthy, large diameter trees wherever possible. Please refer to the Silvicultural Terminology located on the "Explanations of Terminology" card that accompanies the FEIS for clarification of the prescription used in each of the alternatives.

Seventh paragraph, 2d sentence: the sentence should read: "...that are not below cost will be required."

Response: The agency is making every effort to have economical sales. There are trade-offs to most every situation. Building roads allows for more conventional and cheaper logging systems, but helicopter logging can help protect aquatic and wildlife resources. The range of alternatives have tried to mesh these various concerns into reasonable and responsible actions on the ground.

Integrate more science into management plans. To faithfully follow the edicts of adaptive ecosystem management mangers must "manage to learn while learning to manage". To accomplish this goal, management must be designed as an experiment where hypotheses are tested. In order to test management hypothesis, experimental controls, data collection, monitoring and an active research program are needed. The DEIS would be improved by integrating these scientific

elements into management, for it is these elements that are necessary to evaluate the success or failure of proposed management treatments..... In addition, more attention to research plans and budgets is needed to integrate science into management. The integrations of science into management is especially appropriate in this case as many of the statements made in the DEIS are actually hypotheses that are currently not supported by scientific literature...Improve the science in the management plan. Hypothesis testing, experimental design, experimental controls, data collection, monitoring and an actively funded research component, are all needed to improve the science in the management plan. Such improvements are a prerequisite for successfully implementing adaptive ecosystem management on the public estate.

Response: While we try to incorporate the latest scientific information into our land management activities we do not conduct the research activities you describe at the National Forest level. The Research Branch of the Forest Service is the group that plans, develops budgets, and conducts this type of research. We use research information from this branch as well as the work of other researchers to improve the quality of our land management. Activities such as you propose are also outside the scope of this project.

The DEIS fails to consider the ecological benefits of diseased trees and uses restoration to whitewash the effects of thousands of acres of logging and disturbance.

Response: We recognize that diseased trees have ecological benefits. Many of these trees will die and then serve other functions in the ecosystem. For example, in Chapter III we discuss the importance of snags to wildlife and the importance of downed trees to long-term soil productivity. In the FEIS we also explain that vegetation restoration is needed because our present species composition is outside the range of natural variability.

It is difficult to comment on a project which does not have a biological evaluation, with effects determinations, in draft form available for public review.

Response: A biological evaluation is not required under NEPA at the draft stage, although the information used for developing the BE is discussed throughout the wildlife and fisheries sections of Chapter III. A biological evaluation and biological assessment were completed for the FEIS with concurrence from the U.S. Fish and Wildlife service on the BA. These documents are available from the project file on request, however, the information used to develop them can also be found in Chapter III, Sensitive Plants, Wildlife and Fisheries sections.

Tables III-115, 116, 117, 118, and 119 have missing data, without explanation.

Response: Actually, the data is not missing, but the presentation could have been made clearer, and it has been clarified in the FEIS. On page III-291 of the draft EIS it explains there is no substantial difference between the no action and any action alternatives for either mortality level or stand structure. In other words, the effects of timber harvest do not differ much from the effects of the beetle in the no action alternative.

The DEIS at III-89, concerning the no-action alternative: However, few of the 60 existing road channel crossings currently receive regular maintenance. In addition, all potential road improvements under the action alternatives would be foregone under the No-Action alternative, resulting in no change in the projected sediment risk from haul roads. The DEIS's bias is also evident in that such discussions are absent in the analyses of the logging alternatives, even though they would not fix all those problems noted. The approach taken violates NEPA regulations at 40 CFR § 1502.2 (Implementation), which state: To achieve the purposes set forth in § 1502.1 agencies shall prepare environmental impact statements in the following manner: (f) Agencies shall not commit resources prejudicing selection of alternatives before making a final decision (§ 1506.1). (9) Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made.

Response: Each alternative's effects are assessed separately. The action alternatives describe what would occur based on the action, and the no action alternative describes what would not occur. This does not imply a bias or prejudice, and certainly doesn't commit resources prior to the decision. Alternative G was

added in response to public comment and to bring a wider range of alternatives into perspective in the FEIS.

The DEIS contains literally dozens of mistakes even a rudimentary editing job would have caught.... As mentioned above, the DEIS teems with typos, cut/paste errors, and other editing deficiencies that make reading confusing and annoying.

Response: We apologize for the editorial mistakes in the DEIS. We have worked hard to make the FEIS as good a document as possible.

The layout and content of the DEIS borders the ridiculous. By displaying effects by Ranger District you have composed one of the most disjointed, confusing and time consuming NEPA documents I have ever had the displeasure of reading.

Response: Since each of the districts are distinct geographic ecosystems with somewhat different biological, physical and social settings, we thought it would be clearer for display of the analysis and for the decisionmakers to more easily evaluate the project by these geographic areas. Also, many people are only interested in reading about activities in one particular area. Please see Chapter II, Summary of Effects and Chapter III, Conclusions sections for further discussion of effects that may cross these boundaries.

Much of the suspicion and objection that undertakings like the Douglas fir Bark Beetle Project generates in the public might be eliminated if the USFS made documents like this summary of the Draft EIS less opaque and more accessible to folks at various levels of education. Individuals who are not paid for their efforts to find the time to wade through the jargon and poor organization of these documents and come to some understanding of what is being proposed here. It is easy to see how someone might assume that the intent was to obscure the true objectives of the USFS.

Response: This is an area we are continually working on. We have modified the EIS to improve the glossary, better explain technical terms and to put important definitions in easy-to-find places (see terminology located on the "Explanations of Terminology" card that accompanies the FEIS). We also recommend that anyone interested in this project start by reading the summary document prepared for the FEIS which we think is an improvement over the one prepared for the DEIS.

You have provided no data to support your conclusion that there is a "severe outbreak" of DFB. Please explain.

The Draft EIS on page II-35 of Volume 1 indicates that only 3,000 acres are projected to have substantial mortality, and this is with the worse case scenario. Due to there being no emergency, as is pointed out in the Outbreak Incident Report, page 56, there is no need for immediate logging.

Response (to the previous two comments): Annual aerial surveys have been conducted for a number of years. These surveys show that populations have increased dramatically from 1997 to 1998, both in acres infested and in the number of trees killed. The FEIS discusses this in Chapter I and in Vegetation, Chapter III.

The need for immediate logging is to convert the sawlog value of the dead trees to accomplish restoration activities. Additional benefits would be to curb some spread of beetles to other stands, and a reduction of fuels created by the dead trees.

In the Outbreak Incident Report we said "There doesn't appear to be a significant emergency at this time that would warrant alternative arrangements though the Council on Environmental Quality (CEQ)." The significant emergency referred to is one where there is an immediate risk to lives and property, such as a forest fire or other type of disaster. In cases like this the "alternative arrangements through the CEQ" allow for agencies to do things that they would normally not be able to do without completing NEPA documents.

We do continue to believe that we have an emergency situation with the Douglas-fir Beetle, but it is one that we want to address with our FEIS.

The following from III-33 calls into question why vegetative treatment is proposed for Steamboat Creek at all: " This area has very light beetle infestation at present and there is expected to be no measurable impact in stand basal area or stand structure and species composition due to Douglas-fir bark beetles."

Response: After further field reconnaissance, it was determined the infestation level in Steamboat was fairly light. It was left in the analysis in order to look at vegetation and aquatic restoration opportunities that could be achieved through this project.

The Final EIS must supply the data that clearly indicates the locations of each of the clearcuts in each Analysis Area that would be enlarged in size greater than 40 acres under each Action Alternatives. The Final EIS must supply the locations of each of the proposed new clearcut units and the spatial relationship to the current clearcut units in each Analysis Areas, NEPA at 40 CFR 1508.7 and 1508.8.

Response: No clearcuts are planned as part of this project. A table in Appendix D lists proposed regeneration harvests over 40 acres and also regeneration harvests less than 40 acres that are next to previously created openings where the total opening size could exceed 40 acres. A map showing the location of past harvest units in contained in the project file.

The Draft EIS did not disclose and discuss all major points of view on the environmental impacts regarding the size, number and impact of the proposed clearcuts in relation to current clearcuts and expected negative impacts to fisheries and water quality; the contradictory numbers given regarding the actual acres versus estimated number of acres affected by the bark beetles. There is a large discrepancy between 3,000 acres and 10,797 acres (page III-41); the size of units, methods of cutting, number of acres, and the locations of the green trees proposed to be logged; or related to honest, unbiased scientific analysis of the bark beetle problem. There is not unanimous agreement in the scientific community regarding the severity of the problem and what actions should be taken in response to the bark beetles.

Response: It is not clear what major points of view you believe should be considered. The effects analysis for the project includes the effects of past clearcut activities as well as the roads associated with them. The figure of 3000 acres discussed on page II-35 of the draft reflects only those acres with substantial beetle mortality (> than 50% canopy loss). The 10,797 acres discussed on page III-41 of the draft reflects all proposed harvest acres with mortality ranging from 10 percent and above. The unit information is included in Appendix D of the FEIS. Refer to the Silvicultural Terminology located on the "Explanations of Terminology" card that accompanies the FEIS for clarification of the term "green tree removal." The unit information was available upon request after the DEIS was released.

We believe current literature and science was used appropriately for the analysis. Rarely do we see full agreement in the scientific community. The IPNF organized a meeting of scientists and Forest Health Protection personnel to discuss the current beetle outbreak, the expected course of the outbreak, and appropriate management responses. This information was used in developing the EIS. A complete set of notes from this meeting of scientists is available in the project file.

The DEIS should specify which "Level" (III-5) of obliteration and degree of reconstruction is planned by showing the information precisely on the alternative maps.

Response: This information is shown on the maps for the alternatives. Appendix D also presents this information by alternative.

We request you provide tabular information like that in Tables II-14 and II-15, but breaking it down for each separately-analyzed drainage (not just "Analysis Area) in the entire DEIS area.

Response: We had many discussions about the best way to present information in the EIS. Because of the many subject areas we covered no one way seemed to meet everyone's needs. For this reason some subjects, such as the aquatics area, is presented on a watershed basis. Other topics we felt were best presented by analysis area.

Furthermore, we wonder why, with the present "catastrophic" situation because of the bark beetle, the Forest Service has failed to undertake "changed condition" analyses for such approved projects as Horizon Moon, as NEPA requires. We believe putting a halt to all those actions is the Forest Service's only legal recourse.

Response: Horizon Moon has been identified as a reasonably foreseeable project (see Appendix E). The District will do a changed condition analysis per NEPA requirements before that project is implemented. Horizon Moon is the only timber sale in the risk areas with a decision; other projects that come on line will have to assess the cumulative effects of the Douglas-fir Beetle project.

The DEIS is very confusing in its mention of "planned KV projects" on such pages as III-107, and in other places, it is unclear as to whether they are a part of this proposal, or of another proposal, and the degree to which these KV projects are uncertain due to funding. And if "foreseeable" KV actions (III-123) for other projects are certain. We simply cannot tell which road removal/obliteration actions, culvert removal, etc. would be absolutely committed to and which would depend upon uncertain KV (and we consider all KV watershed work to be uncertain), the final bid price, etc. There should be an itemized analysis for each alternative that shows costs of the above actions absolutely committed to.

Response: This was unclear to the public in the draft, so we have included an Appendix D - Road Features in the FEIS that displays each road restoration activity and the certainty of funding. KV work that is shown in Appendix E - Reasonably Foreseeable Activities, is work already funded through sold timber sales.

The DEIS at III-240 states the "Average Diameter of Harvested Trees" in the Coeur d'Alene River District would be 18 inches DBH. The Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins (hereafter, Scientific Assessment) recognizes the importance of maintaining large, old trees and the loss of big trees in Columbia Basin from logging. NEPA at 40 CFR § 1502.24 states. "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." And at 40 CFR § 1500.1(b) (E)nvironmental information ... must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." The DEIS fails these NEPA requirements.

Response: We fully agree with the need to maintain large old trees and structure in our ecosystems. Were it not for the Douglas-fir beetle killing a huge number of these trees, these would not necessarily be the prescriptions or the areas we would be proposing for activities. The majority of the acres analyzed for the Coeur d'Alene District are selection harvest, which means at least 50% of the canopy would be left intact. We believe your assumption that many of these large old trees would survive the beetle attack is incorrect for this first year's flight. An increasing percentage of trees will survive the beetle attacks over the next couple of years because green trees offer greater resistance to the beetles than dead trees do. Entomologists and silviculturists will be involved in ground verifying conditions of future flights. There are also snag and recruitment snag guidelines in place to maintain larger structure on these sites for wildlife needs. We feel confident that we are providing high quality environmental information. Accurate scientific analysis, expert agency comments, and public scrutiny have all played a substantial role in this project.

If the Forest Service is going to quote from the RPA [Rangeland Renewable Resources Planning Act of 1974], then the Final EIS must supply data that will state how many times the RPA has been updated since 1974, including last update, and whether RPA as written meets the new requirements associated with the Clean Water Action Plan of 1998, regarding National Forests. The Final EIS must also indicate whether RPA meets the requirements listed in the "Final Framework for Unified Watershed Assessment, Restoration Priorities, and Restoration Action Strategies", pertaining to

National Forest lands, dated June 9, 1998. The Clean Water Action Plan and the Final Framework are much more relevant to the proposed logging and road building on the Coeur d'Alene National Forest that is the 1974 RPA.

Response: We believe information regarding updates to the RPA is extraneous and is not a factor required to make a decision on this project. One of the primary purposes of this project is to improve watersheds through restoration. Therefore, the project is consistent with the purposes of the RPA and the Final Framework.

In the DEIS particular attention should have been given to NEPA at 40 CFR 1502.16(a)(b), and NFMA at 36 CFR 219.14(c), 219.15, 219.19, 219.19 (a)(1), 219.23, and 219.27. The DEIS also should have addressed the following requirements of NFMA in its entirety regarding 219.19 Fish and wildlife resource, 219.23 Water and soil resource, 219.26 Diversity, and 219.27 Management requirements.

Response: Based on your and other specific comments these discussions have been improved on, where appropriate, for the FEIS. Please refer to the various sections in the FEIS you have mentioned.

The draft identifies portions of Stimson ownership for proposed harvest treatment in the extreme NE corner of Section 31, T33N, R46E,W.M. I am assuming that this is the result of a mapping error or delineation of some sort and not a proposal for harvest treatment on Stimson land by the USFS, to which I would object.

Response: You are correct--it is a mapping error. That has been corrected.

Cumulative Effects

Similar Comments There were two similar comments stating there was no cumulative effects analysis for the entire project.

Response: See the Conclusions Section of Chapter III for project-wide cumulative effects discussions. This section was in the DEIS and we have improved on it in the FEIS.

Individual Comments
Overall we find that your discussion of current, projected, and cumulative effects to the basins in the Pend Oreille watershed are largely vague, nondescript and seemingly of the "cut and paste" type. Some basins have no discussion of cumulative effects while ones that do give the reader scant information.

Response: The watershed discussion in Chapter III has been expanded and clarified in response to public comment. A more detailed watershed and risk analysis was also completed between the draft and final EISs. Please refer to the watershed section in Chapter III for detailed information.

Missing from the DEIS are maps of past logging activity. Also, cumulative effects analysis lacks detailed discussion of past logging activities and their impacts on the natural environment. How much of the New Moon sale has occurred? Some of the sales included with the New Moon may be implemented at the same time as this project - how will this affect fish, wildlife, noxious weeds, soils?

Response: See the first part of our response to the next comment regarding past timber sales. Past and future logging activity in the analysis areas were taken into account in several parts of the analysis and the effects are described in the Affected Environment sections, the Soils section, the Vegetation sections and in the discussions of cumulative effects. They were also used in the watershed and fish analyses. The project files contain more details about those actions and how they were used in the analyses.

The New Moon Timber Sales and Prescribed Burning for Ecosystem Restoration project is an active timber sale on the Newport District. It is approximately 15% complete as of spring 1999. There are no regeneration harvests in any of the timber sales that resulted from the New Moon EA. Commercial thinning,

salvage and broadcast burning have been, and would be used to achieve the objectives described in the recommendations section of the New Moon Ecosystem Analysis at the Watershed Scale and in the New Moon EA. All of these activities were taken into account when analyzing the current condition of the proposed treatment areas for this project. The cumulative impacts of those in addition to this proposal are described in Chapter III.

The following data is supplied for the Official Record of the Final EIS regarding the cumulative effects, both indirect and direct, of past Forest Service timber sales, that needed to be analyzed in the DEIS, as required by NEPA. ...[p]ast Forest Service timber sales in and adjacent to each of the Analysis Areas... along with other Forest Service timber sales should have been analyzed in the DEIS.... [We] requested data regarding the number of Forest Service timber sales that have taken place in each of the Analysis Areas. We also requested data for the number of acres that have had regeneration logging for the Compartments that are part of each Analysis Area. The DEIS in Chapter III, Vegetation... did not supply the requested data, in violation of NEPA at 40 CFR 1500.1(b)... The DEIS is in violation of NEPA regarding the number and locations of past logging units, particularly clearcuts, which would be enlarged in size in excess of 40 acres under each Action Alternative. The DEIS also is in violation of 1500.1(b) and 1502.16 in these analysis areas, current logging units and proposed logging units are not described and analyzed in the DEIS in Chapters II or III.... The Final EIS must list the data requested by KEA, as required by NEPA, regarding acres of regeneration logging and acres clearcut for Compartments....The public and Federal Agencies, must have accurate, high quality information. This is particularly critical due to the number and size of current clearcut units in each of the...Analysis Areas where new clearcut units are proposed to be placed adjacent to the current clearcuts...The public and Federal Agencies cannot make an informed decision since this information has not been supplied by the Forest Service in the DEIS. The Final EIS must supply the data that indicates the locations of each of the clearcuts in each of the...Analysis Areas that would be enlarged under each Action Alternatives. The Final EIS must supply the locations of each of the proposed new clearcut units and the spatial relationship to the current clearcut units in each of the 6 Analysis Areas, NEPA at 40 CFR 1508.7 and 1508.8.

Response: The EIS does take into account past timber sales that have occurred in each analysis area, and acres of each prescription are listed in Chapter III, Vegetation - Existing Condition Tables. Sale names are not listed, and are not important in the context of the decision to be made. Past sale activities including harvest, site preparation, planting etc., are put into a data base the year they are accomplished. This data base is then used for analysis and is available upon request.

Past timber sale information is available in the TSMRS data. The CFRs also state that "NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail." Our task has been to focus the analysis and information to those factors most pertinent to the decision to be made. For example, while the "number of Forest Service timber sales" that have occurred over time may be interesting information, it in itself has little bearing on the cumulative effects which may occur on the landscape in relation to this project. The analysis focuses on and discusses the current condition (i.e. habitat condition, species composition, appearance, etc.) and continuing effects of those past activities (i.e. sediment production, successional trends) that cumulatively may interact with effects from the proposed alternatives to affect the environment.

There are no clearcuts proposed under the Douglas-fir Beetle project. Please refer to the Silvicultural Terminology located on the "Explanations of Terminology" card that accompanies the FEIS. Chapter III - Vegetation discusses over 40 acres openings. Also refer to Appendix D - Unit Information to see which units would be greater than 40 acres, or are adjacent to openings that would cause them to be over 40 acres when combined. Maps showing the spatial relationship of past harvest activities are available upon request from the project file.

For the Chain Lakes Cumulative Effects Analysis Area...it needs to be stated that the EA written for the Fortier timber sale called for 8,000 Mbf to be logged but 14,050 Mbf were logged instead.

Response: Volumes are not a good predictor of effects. Environmental Assessments are site specific, but acreages and volumes are always estimates subject to refinement once ground layout begins. Timber sale

cruises are also estimates and are not guaranteed volume to the purchaser. Past experience has seen both over-runs and under-runs on our cruises.

It is clear that cumulative effects analyses are grossly inadequate... Any actions not yet carried out should be considered the same as all proposed activities in this DEIS--tentative and subject to full effects analysis within the DEIS! They should be fully disclosed in all alternative maps, tables, and descriptions of proposed actions.

Response: All activities that are reasonably foreseeable have been considered in the cumulative effects analysis in the DEIS and the FEIS. A complete list of those activities can be found in Appendix E, and more detailed information is available on request from the project files. The maps are designed to clearly show what activities are being considered for decision within this EIS. We believe including these reasonably foreseeable activities in the tables, maps and descriptions of alternatives would erroneously imply that this EIS might make some additional decisions on those projects as well. Please note that many of the reasonably foreseeable actions are not only beyond the scope of this decision, but also beyond the jurisdiction of the Forest Service (i.e. private land activities).

There is no evidence in the DEIS that the Forest Service has made a good faith effort to find out what conditions are on non-national forest lands, and what other land owners are doing in response to the alleged "catastrophe." This has vast implications on biodiversity and forest ecology, and thus NEPA requires cumulative effects analyses on land of all ownership in logically-defined cumulative effects analysis areas. The Forest Service cannot legally throw up its hands and say, "we don't know" as the DEIS reflects.

Response: Further information was gathered on current or proposed activities being conducted on adjacent private, state and other federal lands. This information was carried through the analysis in Chapter III. A listing of those contacts and activities are included in Appendix E - Reasonably Foreseeable Activities.

The DEIS does not discuss the proposed pheromone baiting study and potential cumulative impacts.

Response: The Douglas-fir Beetle Pheromone Study is not part of this project. It was listed as a Reasonably Foreseeable Activity in the DEIS on page III-3, paragraph 8 (refer to FEIS Appendix E - Reasonably Foreseeable Activities). This project is further described in the response to comments section entitled "Controlling the Beetle Infestation."

More Study Needed

Similar Comments There were 12 similar comments stating that more study and analysis is needed before proceeding with the project--that the DEIS lacked detailed site-specific analysis. Two of those comments asked for a delay in the decisions and an extended period to complete the EIS. Three of these comments asked that we extend the comment period.

Response: While we wanted the DEIS to be as complete as possible, it was a draft and, as such, a work in progress. The design and analysis of the alternatives has been based on very site-specific information. Since releasing the DEIS, both internal and external reviews and your comments have been used to help us identify needs for additional analysis and clarifications. We have read and analyzed more than 900 public comments and have worked to incorporate as many of those concerns as possible into the FEIS, including moving more site-specific and detailed information from the analysis files into the FEIS. We believe the comment periods after the release of the proposal and following the release of the Draft EIS have been sufficient.

Definitions And Terminology

Individual Comments

Due to the short time Forest Service personnel have had from the onset of the analysis to the release of the DEIS, we are concerned the data used on the extent of the beetle infestation is very suspect. For example, data supporting categorization of "priority" (I-3) areas is extremely lacking. And, under Proposed Action page I-3 states logging "is proposed in stands currently attacked" by the beetle. This makes no sense because "stand" is not defined. If this means the technical definition the FS uses for "stand," then a single tree being attacked (not even for sure being killed) in one end of a 120-acre stand would be proposed for logging, while the area immediately adjacent, in another stand, may not. On II-9 it states, "(T)he proposed action? (Alternative B) was designed to treat only the areas of known beetle infestations." Again, what does "areas" mean? This also contradicts a sentence further down the page: "The recommendation to proceed with either a regeneration harvest or selective cutting of dead trees on any particular area was based on the current year's infestation and projections of increased beetle activity within, and immediately adjacent to the current infestation area."

Response: The priority areas were defined in the Outbreak Incident Assessment Report which was available at the draft stage. Field information was used to verify priority areas as well as the aerial surveys. All field survey notes are available on request from the project files and the term "stand" has been added to the glossary for clarification. We realize the terms "stand," "area," and sometimes "unit" were used somewhat interchangeably in the document when referencing infestation areas. As the location of the beetle infestations and activities often cross technical stand boundaries, no one term fits all situations. The important point at question is how the infestation areas were incorporated into logical treatment areas, and this varied depending on the situation found on the ground. Since the pattern of infested trees depends largely on how suitable Douglas-fir is distributed throughout the forest, each case is a little different. Sometimes the current mortality is located in single easily defined patches, sometimes in multiple patches in close proximity, and sometimes distributed fairly evenly across one or more forest stands. Identification of treatment boundaries, as partly noted in your last quote above, had to consider the arrangement of the existing mortality, the fact that others trees in the immediate area were at the very highest risk of becoming infested, and the proposed activities had to be feasible considering factors such as terrain features and access.

We are concerned that the DEIS deviates from the long-standing practice of using professionally accepted terminology. This is especially of concern because the document adopts different definitions for some terms that have long been defined and used by professional foresters. You have chosen not to use the terms "Sanitation" and "Salvage", and instead resorted to the use of the term "Selective Harvest." However, your document uses this term to describe a wide range of treatments, running from salvage to thinning to regeneration cutting. Sanitation, Salvage, and Selective Harvest have clear and long standing definitions within the forestry profession. We feel that the use of professionally-based terminology should not be redefined for each project or to appease the politically correct attitudes of any particular administration. Forestry terms should be used as implied by standard and accepted definitions.

Response: The Final EIS should reflect a response to some of your concerns on the use of accepted professional terminology. The "Silvicultural Terminology" as defined in the Draft EIS on page III-4 has been revised to incorporate the types of management prescriptions that may be found under a "Selective Harvest" and a "Regeneration Harvest." The definitions for these various silvicultural prescriptions, accepted by the Society of American Foresters, are included in the glossary of the document for the various prescriptions as well as the "Explanations of Terminology" card that accompanies the FEIS. We believe these prescriptions to be a subset of the broad based definitions of "Selective and Regeneration cuttings." As an example, the current definition accepted by the Society of American Foresters indicates that a "Selective Cutting" (synonymous with "Partial Cutting") is a cutting that removes only a portion of trees in a stand for purposes other than regeneration of a new age class. This is broad-based and would include such prescriptions as "Thinning, Salvage, and Improvement Cutting." Our descriptions in "Silvicultural Terminology" go a step further than just telling our public what prescription would take place, it describes when this prescription may be triggered and tries to explain, in some ways, what to expect from a visual or wildlife aspect. It also gives an explanation of what treatment to expect beyond the harvest so

that the general public may better understand what to expect. We believe this communication is essential for the non-professional to understand. Many times this lack of understanding or a "mental picture" has caused a failure in communication with the public. As an organization of forestry professionals, we believe you can appreciate the challenge of communicating professional forestry terminology with non-professional people. Also, for further information, in the unit tables located in Appendix D, you will find the prescription for each proposed treatment area by alternative. This may help in any further review of unit specific prescriptions and treatments in the Final EIS.

The only thing that bothered me was the lack of a clear definition of the term "Regeneration Harvest". Does that amount to "clear cutting", where all trees in sight are removed or does it mean the removal of only diseased and other trees most likely to be infected?

Response: The term "regeneration harvest" has been defined better in the FEIS. Please refer to the Silvicultural Terminology located on the "Explanations of Terminology" card that accompanies the FEIS and in the glossary for clarification. There are no clearcut harvests planned on any of the districts under this project.

Page III-355 does not define "TSI."

Response: TSI means timber stand improvement. This has been clarified in the FEIS.

NEPA is not a interdisciplinary process as is stated on page AG-6.

Response: The definition you are referring to in the glossary was for "National Environmental Policy Act (NEPA) Process," not for NEPA (which is the act itself). Please refer to 40 CFR 1502.6 for a discussion on the required interdisciplinary process required to prepare an environmental impact statement.

References

Individual Comments

A number of scientific and other citations referred to in the text are not contained in the List of References section. Please do so in the FEIS.

Response: We have corrected this. All citations in the text of the FEIS should be listed in the References section.

The DEIS references the Leiberg report, Priest Lake Forest Reserve; why are similar reports for the Colville not used? The Forest Service does not disclose that many stands, in 1897, were dense thickets and that the forest may not be so out of whack as the DEIS assumes.

Response: The Newport District analysis used some of Lieberg's data to extrapolate what conditions were probably like in areas of the Newport District that are similar to areas of Priest Lake and Sandpoint. This has been noted in the FEIS. In addition district staff used other data from the early 1920s and up to determine historic conditions. See information on the Newport District in Chapter III - Vegetation for literature citations.

Finances

CONCERNS THAT SALES WOULD NOT PROVIDE FUNDS FOR RESTORATION

Similar Comments There were 79 similar comments expressing concern that the Forest Service would not make a profit or would lose money on the project, at a cost to taxpayers and would not have money to accomplish restoration work. Several people quoted a figure of the Idaho Panhandle National Forests losing $50 million between 1992 and 1996--a figure some said, came from a General Accounting Office Report.

Response: The analysis for this project focuses on predicting the actual costs that would occur from this project and predicting what timber values would be worth at the time of sale. The activities planned in each alternative and each funding source is described in Chapter II and Appendix D. Many existing problems with roads would be corrected with the action alternatives. Some of the activities would be funded through other sources than timber sales.

The financial analysis of the FEIS shows where we can reasonably expect to generate enough money to complete planned restoration activities. Part of this analysis is to show the minimum bid that would be necessary to facilitate restoration activities. Additionally, generating profits is not a reason for the project, however, expected revenue to accomplish restoration work is.

The overall IPNF timber sale program (or past timber receipts and expenditures) is not analyzed as part of this project. The General Accounting Office (GAO) report that this $50 million deficit number comes from specifically states that "The data in this report are timber sales accounting data on a cash basis that recognizes receipts when collected and outlays when paid. Because of this, the data presented in this report are not a measure of profitability" because it only looks at one portion of the timber sale funding and accounting systems. Congress recognized this and directed the creation of the Timber Sale Program Information Reporting System (TSPIRS) which accurately displays annual costs and benefits of the timber sale program on an accrual basis. According to TSPIRS records, the Idaho Panhandle timber sale program for Fiscal Years 1992 through 1997 resulted in a positive cash benefit of $42,258,110. Even when payments to states were deducted there was still a positive balance of $9,530,986. TSPIRS data provides a more accurate picture of the Idaho Panhandle's timber sale program profitability than the GAO reports.

Individual Comments
Because the FS cannot adequately predict which trees will be attacked by Douglas-fir beetles, the agency cannot logically contend that the proposed actions will recover the economic value of beetle attacked trees.

Response: This analysis is based on scientific prediction of several experts of how this epidemic will run its course. The actual outcome may very depending on weather and treatment progress. If it turns out that weather or other factors reduce the actual effects of the beetle epidemic on the ground, then we have the option to treat fewer acres. However, each harvest alternative has freedom to recombine units to take maximum advantage of market conditions and contract provisions. Some watershed restoration work is guaranteed, regardless of the funding method (see Chapter II and Appendix D).

DEPRESSED TIMBER MARKET

Similar Comments In addition to the comments about losing money, there were 25 similar comments stating concerns that market price of Douglas-fir is at a three-year low. Many people were concerned that this would impact whether there would be money available for restoration opportunities.

Response: The financial analysis performed for the FEIS indicates that all action alternatives involving commercial harvesting, (except one--Alternative F), would result in both the basic sale costs being covered plus much of the desired watershed recovery work being funded. The analysis also recognized that the

timber market is still down from where it has been in the past, and this fact was incorporated into the projected stumpages in several ways:

a. The computer program that was used is built on actual bidding on similar sales within Region 1 of the Forest Service (northern Idaho and western Montana) in the last six months. (The program incorporates the Transactions Evidence (TE) appraisal regression formula.) Species prices from the latest published price base bulletin was used in conjunction with the computer program.

b. Throughout the analysis period the timber market was watched for a developing trend that had not been captured in the Transactions Evidence (TE) appraisal regression formula - especially a further downward trend. When the DEIS was prepared the market had leveled off. The new Transactions Evidence (TE) appraisal regression formula showed a slight improvement over the last edition. At present (mid-April) bids received at the IPNF Supervisors Office show the market in an upward trend.

c. Because the market is not robust as it has been, the analysis was made as real as possible by grouping the proposed harvest units; then an economic analysis was performed as though each group was a sale area. Thus, stumpages and costs could be more accurately estimated and directly related to each other (so that the analysis would not be comparing averages where stumpage would perhaps be coming from one end of the district but the costs in reality were at the other end of the district in another sale area).

In order to maintain the probability of economically viable timber sales the units can be regrouped pending actual field measurements (such as cruised volumes and species mix) and the timber market at appraisal time.

It is the totals of the above smaller analyses that are displayed in the tables titled Cost/Revenue Summary, for the respective ranger districts, located in the Financial section of the FEIS.

Similar Comments Two individuals were concerned that there would be a flood of timber on the market that could drive prices down further, affecting prices private landowners would receive on their timber. One individual said they hoped that the volume of timber taken from the Coeur d'Alene District in subsequent years be reduced so that the average of timber taken over a 5-year period would be the same as if the beetleproject did not exist.

Response: From 1994 to 1998 the average volume sold has been 37 mmbf from the Colville NF and 54 mmbf from the IPNF. The action alternatives would result in the sale of between 16 and 52 mmbf on the Colville NF, depending on which alternative is finally selected. On the IPNF, the action alternatives would result in the sale of from 72 to 123 mmbf. The timber volume that would be offered by the sales covered under this EIS would primarily replace sales volume that had been scheduled on the IPNF and would partially replace scheduled sales from the Newport district of the Colville NF. Thus it is likely that in the next year or two the total volume sold from the two forests would be somewhat higher than the 5 year average volume sold. The proportion of harvest from National Forest land in north Idaho fell from over 30% from 1988 through 1991 to 12% in 1997. Thus stumpage harvested and sold from the National Forest is not as large a factor in the total stumpage market now as it was 10 years ago.

Timber harvested from the Newport district of the Colville NF enters the same north Idaho stumpage market as that harvested from the Priest River and Coeur d'Alene districts of the Idaho Panhandle NF. An analysis of timber harvest from all ownerships and mill capacity to process the harvested timber for the period 1988 to 1997 shows that for the 10 county area of north Idaho, harvest volumes have declined by approximately 190 million board feet (mmbf) and mill capacity has dropped by 209 mmbf. In 1995, the most recent year for which published information is available, there was a total mill capacity in north Idaho of 1,263 mmbf, of which 205 mmbf was unused capacity (Keegan 1997). At this time (spring 1999) it is the opinion of Charles Keegan, University of Montana Bureau of Business & Economic Research, that there

continues to be enough unused mill capacity in north Idaho to process the volume of timber that would come from sales resulting from this project without affecting the stumpage market (personal communication 4/99). Harvest of the stumpage sold from sales resulting from this project would take place over the next 3 years. That harvest would be from 29 to 58 mmbf each year depending on the alternative selected, and that volume is well below the estimated 200 mmbf of unused capacity currently in north Idaho.

MAKE SALES ECONOMICAL

Similar Comments There were 341 comments stating that timber sales should be economically viable to be able to accomplish the project and restoration work. Some said that using conventional logging systems over helicopter logging would help keep costs down.

Response: Conventional logging systems are generally less expensive than helicopter logging. For this reason conventional systems will be used where possible. However, sometimes construction of the roads needed for conventional logging systems is not feasible or desirable because of site conditions or to protect other resource values. In these cases, helicopter yarding may be the system of choice. Helicopter logging costs were considered in the economic analysis, as well as the current delivered log price. Current plans to helicopter log do not necessarily preclude using future conventional logging (although sometimes it can).

USE OF K-V FUNDS

Similar Comments There were two similar comments that stated they would like to see the monies generated from the sale of insect-killed timber be returned to the sale areas for watershed restoration and reforestation, and not have that work rely on yearly congressional appropriations. The funding method that allows sale-generated monies to be spent within sale areas was established by Congress through the Knutsen-Vandenberg Act (thus the term: "KV funds").

Response: Maximizing the use of KV funds was a major design feature in all of the alternatives that contained a timber sale component and was incorporated into the alternatives through feedback from iterations of the economic modeling:

We made the economic analyses as real as possible by grouping the proposed harvest units, then performing an economic analysis as though each group was a sale area. This allowed a more accurate estimate of what KV monies would be developed and where they could be spent (i.e. what watershed sites fell within sale area boundaries).

We continually reviewed the necessity of all proposed sale activity work (such as type and/or extent of fuel treatments, road work, etc.) that would be required of the purchaser. The objective of these reviews was to find ways to maximize the money that would be available for watershed restoration.

The harvesting alternatives also incorporated another method of achieving remedial measures that does not rely on future congressional appropriations. That method identified watershed improvement work that sale purchasers could perform, such as upgrading culverts, and/or removing culverts and closing roads. This allowed the work to be accomplished more economically than through KV funding with its high overhead costs.

Required ("essential") reforestation is included in the minimum bid price of the timber sale so that the cost is covered up front.

Individual Comments
I would not object to this basic plan with two provisions. First that the funds raised actually find their way back to local restoration work in the same areas where the timber is cut, and second, that the money is well spent on work that is well devised to have true long term effectiveness.

Response: The rules for expenditures of KV funds require that they be used in the sale area in which they are generated. Restoration work has been designed to provide the highest benefit that could be accomplished with that type of work.

ECONOMIC IMPACTS TO RECREATION

Similar Comments There were four similar comments about the economic impacts of the project on recreation. Two people said there would be an economic impact as a result of visual impacts of the project. Another person mentioned that tourism would be affected by damage to various forest resources. One person said there would be a loss of recreation income to the state.

Response: Please refer to Chapter III, Scenery and Recreation sections for a discussion of effects of the project on recreation. The impacts of proposed activities on tourism businesses are expected to be minor in comparison to the large availability of recreational activities and opportunities.

WOOD'S VALUE TO ECONOMIES

Similar Comments There were 21 comments about the value of timber to jobs and communities stating that the revenue generated is important for jobs in communities and for schools. These comments have been noted and do not warrant a response.

FINANCIAL ANALYSIS

Similar Comments There were two commentors that stated the DEIS did not evaluate the adverse economic costs of the logging, or the non-market benefits and uses of the ecosystem. One commentor said that incorporating non-commodity costs and benefits into economic analysis is consistent with the Scientific Assessment of the Ecosystem Components of the Interior Columbia Basin (ICBEMP).

Response: As stated before, the ICBEMP does not provide management direction. The scientific assessment refers to the process of making a decision in managing public resources. In other words, recreation does not need to be quantified in dollar values to be compared to the dollar value of timber resources in making a decision regarding sale of public timber. Haynes and Horne also state that " Many of the benefits provided by these lands have no prices and their quantities are not routinely measured . Laws and regulations reveal the importance society places on these benefits and shape the manner in which they are produced and used." Also, "market prices may not fully capture relative importance, 'value' does not necessarily reflect money that changes hands."

Individual Comments
We believe you are underestimating the rate of value degrade in beetle damaged Douglas Fir. We have had experience with salvage of two year old dead timber. It is essential to capture mortality in the first year.

Response: As a federal agency we must follow a well defined process to comply with our NEPA responsibilities. While this process takes longer than some people like, complying with NEPA and the many other laws that regulate Forest Service activities is a responsibility we take seriously.

In a report by Evans and Associates (1999) on the deterioration rate of beetle-killed Douglas-fir, they discuss wood deterioration agents such as stains, borers and fungi that can affect the wood value after the beetle has killed the tree. They point out that the "Douglas-fir beetle does not cause direct damage to the wood." The report estimates that volume losses of beetle-killed trees could reach 20 to 30 percent by the third year after death which would result in a value shift from lumber products to pulp.

Your accounting often assumes that somehow building a road has "added value" since it allows more access to the Forest. This "added value" only exists if you believe that roads are a good thing. To me every mile of road in the forest reduces the value of the land.

Response: This comment refers to the TSPIRS report which annually shows some general numbers for timber sales by forest. This accounting method has been changed since 1997 to show the road prism as a cost instead of an asset.

Whatever short-term economic benefits result from this focus should be accepted. In other words, don't primarily concentrate on recovering the short-term economic value of the dead, dying or at-risk trees and by doing so, overtreat affected areas to their long-term detriment.

Response: The short-term economic value would provide revenue to accomplish needed restoration opportunities that would result in long-term ecosystem benefits. Chapter II provides discussion on our proposed treatment, mitigation measures and design features which are evaluated in Chapter III for effects.

Improve budget-cost analysis of each alternative- The process of attempting to maximize net public benefits from management of public lands involves selecting a management alternative and successfully implementing the preferred alternative as planned. Successful implementation requires long-term funding arrangements. If a plan is not faithfully funded and implemented as planned, public benefits are less likely to be maximized. With this in mind, the DEIS does pay some attention to developing implementation plans for each alternative based on an analysis of management costs and expected budget levels. The DEIS could be improved if more sensitivity analysis on budgets, costs and revenues was completed (especially in light of the optimistic stumpage revenues predicted.) Given the agency's history of non-enforcement of mitigation work, the DEIS could be improved if the past level of (non) enforcement on both national forests was analyzed and discussed. In addition, a more detailed budget cost analysis, including sensitivity analysis of key assumptions and parameters, would greatly improve the DEIS by providing information on how mitigation costs compare with budgets under different assumptions about the future. The proposed action involves opportunity costs -- in terms of the benefits generated if the Forest Service allocated more money to other projects. Public land management agencies have an extensive backlog of work to complete on the recreation infrastructure requiring the investment of millions of dollars. As such, the opportunity cost associated with the proposed management action is the public money diverted away from investment in recreation resources and watershed restoration. Some discussion of the opportunity cost of budgeting each management alternative would improve the DEIS.

Finally, the opportunity costs of the logging program, which include the value of uses forgone on areas logged plus the benefits associated with alternative uses of timber sale funds have not been evaluated on a project basis or for the logging program as a whole. In the final E.I.S. for the Douglas-fir Beetle Project, the Forest Service must analyze alternative uses of funds to be spent on this timber sale, to determine whether or not net public benefits can be maximized in other ways.

Response: (to the previous two comments): The assumption that funds are diverted from recreation and watershed is erroneous--we have no way of knowing this money would be available for the activities if it weren't being spent on timber sales (due to the Congressional appropriations process). That type of analysis is outside the scope of a project level analysis such as this. The Forest Service does have some flexibility on distributing money generated by timber sales, and in this case we have made watershed and wildlife habitat restoration a priority. The purpose of this project is to respond to the Douglas-fir beetle outbreak by restoring vegetative and aquatic ecosystems utilizing timber harvest and the recovered value to accomplish the restoration objectives. It is difficult to fund recreation projects with timber sale-generated money given existing authorities.

Appendix D contains a description of certainty of the funding of the restoration projects, which is a fairly good indication of the predicted budget for the short duration of this project. The project funding's sensitivity to changing market conditions is shown in Chapter III by displaying the difference between money needed to implement projects and predicted amount to be bid.

Are all restoration projects guaranteed? Or are they dependent on funding?

Response: Appendix D has a discussion of the level of certainty of restoration work being done for each alternative. This varies from highly certain, quite certain, less certain to uncertain. Funding sources vary from appropriated dollars which are independent of timber sales to those sources of funding associated with timber sales.

The DEIS failed to disclose the fact that it will not be profitable for helicopters to extract non-commercial understory pole-sized trees (2-9 inches DBH); hence, most of these live or dead stems will be either left standing as high-hazard aerial fuels or will be cut and left downed as "cull" logs. Likewise, the DEIS fails to convince the public that so-called "top-yarding" is technically feasible or profitable for helicopters.

Response: Treatment of fuels remaining after yarding operations have been planned for all units, and this includes non-merchantable sized trees. These would be burned with the rest of the logging slash if it is determined that they would pose an increased fuel hazard.

The yarding of tops with helicopter, although expensive, has been successfully accomplished on the Idaho Panhandle National Forests in the past. Yarding tops with helicopters is not planned for the Newport District.

Please discuss how road projects will be paid for. K-V? FEMA? Other sources? Please disclose average TSPIRS costs on the forest for FY 1998.

Response: The financial analysis estimates the costs of road projects that would be funded through timber sale contracts or Forest Service (KV or appropriated) dollars. Appendix D describes how each road would be funded. TSPIRS costs for 1998 have not been established. The 1997 TSPIRS report for the Idaho Panhandle National Forests are in the project file. Relevant costs for the Colville NF developed in a similar method are also included there.

We wonder if the costs of noxious weed treatments made necessary by the various alternatives are included in the economics analysis. This includes the necessary post-treatment follow-up treatment and effectiveness monitoring, included in the noxious weed plans, also. We are concerned that the "Project Monitoring" at II-28 to II-31 are promises made without funding secured. Some are to be done with unsecured K.V. dollars, for example. The lack of itemization of the costs of all these monitoring items is one of the deficiencies of the economics analysis. Without dollars-and-cents commitments, we are justified in our skepticism over whether the monitoring will ever occur. Nowhere has the Forest Service considered the long-term economic trade-offs associated with expensive fire suppression and the subsequent expensive mechanical treatments deemed necessary to propel the ecosystems back to so-called "historic, natural" conditions. Nature would provide these ecosystem benefits much more cheaply. Wildfire, combined with public education on preparation, plus firefighting only near threatened property would cost taxpayers much less than the war mentality dominating current fire management policies.

Response: The cost of noxious weed treatments are included in the economic analysis for guaranteed work. There are other potential post harvest treatments that are not guaranteed, so the costs were not included.

Monitoring would be completed as described in Chapter II. See the noxious weeds discussion of the monitoring section for more details.

The cost of fire suppression is outside the scope of this proposal since it is national policy.

We have noticed a disparity between the sale price, as offered in the timber sale prospectus, and in the final report of sale, for many North Idaho timber sales of the past few years. We also notice an apparent disparity between the expected price, as used in the EAs of these timber sales, for cost/benefit analysis, and the actual price received. Has the sale priced received by the Forest been lower or higher than that used in the timber sale prospectus? Does this have any relationship to the number used in the EA for economic cost/benefit analysis? Will the timber sale price be lower than usual, since required mitigation is to be contained in the timber sale contract? What implications does this have on the ability of the Forest to complete proposed watershed restoration projects?

Response: The sale price in the timber sale prospectus is the lowest bid price that would be accepted. Some timber sales have "adjustable" rates after a sale. The rates on these sales are moved up or down depending on the timber market from the previous 3 months. These rates are never adjusted below the amount necessary for reforestation.

The predicted value of a sale documented in an EA or EIS does not affect the value of the sale at the time of advertisement.

The timber sale price may be lower than usual, although recent timber sale contracts have included much of the same type of work and conditions. The FEIS now displays the minimum price necessary to cover the work, and sale requirements are shown in the predicted bid part of the table.

This project while being played as a near emergency, is offered with a great big carrot on a stick. This is the promise of "watershed restoration" work coming with the package. History does not speak well of the IPNF producing net revenues from which KV funds, or other funding, will be available for such work. I grow weary when I hear good FS people suggest that they do not have so-called below cost sales. This rational is suggested on the strength, in pat, that payments to counties is not considered an expense of the sale. Now the accounting course I have taken, which are fairly numerous, clearly state such payments are unmistakably considered a cost of doing business and are recorded as such. During these recent depressed timber markets, it appears very questionable that these hyped up, rush, rush sales will ever produce sufficient funds for the so-called watershed restoration work so touted in the draft EIS. If the watershed restoration work is to be an integral part of the sale contract, it would seem to me that the bidder will merely submit lower bids in order to cover his costs of performing the work according to the contract. On pages III-239/240, the DEIS claims that a USFS computer programs you refer to as TSPAS_X produces potential bid values from timber harvests. You then go on and state more gobbldy-gook that the Transactional evidence (TE) model was run for 50% confidence level. 50% at what variance? Is not such a low confidence level considered unacceptable? This is to say that the chances of the predicted stumpage values are subject to considerable variance. In other words, calculating such a cost estimate at such a low confidence level leads me to believe that the financial appraisal data shown on page III-241 is mathematically quite unreliable.

Response: The DEIS statement refers to a 50% confidence level, which merely means that the stumpage estimate comes from a regression line, with approximately half of the actual observations above the line and half below. The stumpage estimate is a point estimate on the regression line, and as such is the best estimate of expected stumpage value. There is no confidence interval associated with this point estimate.

The analysis in the FEIS reflects the payments to counties. In all timber sale alternatives, the net value of the timber sales exceeds the payments to the counties, indicated that the sales would cover all expected expenses including transfer payments.

As discussed, the DEIS did not quantify the loss of existence benefits in any of the management alternatives. Alternative D for example, includes the construction of 20.8 miles of new roads that would result in the loss of roadless area existence benefits across the landscape.

Response: Roadless areas are not affected by the proposal. No road construction would occur in roadless areas and reduce the existence of roadless areas.

The DEIS fails to analyze the economic costs and benefits of each alternative on recreation benefits... Soil Productivity- Of potential importance for the DEIS is the impacts of regeneration harvest treatments (i.e. seed tree cuts) and controlled burns on site productivity and carbon storage; the removal of biomass and prescribed fire both result in the loss of carbon and nutrients. The DEIS would be greatly improved if these costs and benefits were estimated and included in the economic analysis of management alternatives... Watershed Protection Economists have recognized the negative effects of timber management on the quality of water flowing from public watersheds (Brown and Binkley 1994) These costs are quantifiable, are cumulative, and could be included in the economic analysis completed for management alternatives on the public estate... Visibility Aesthetics- The economic costs from management actions that degrade scenic quality can be estimated based on the reduction in recreation benefits.

Response: This project has been designed to follow decisions made in the Colville and Idaho Panhandle National Forests Land Management Plans (Forest Plans). These Forest Plans followed regulations for NEPA and the National Forest Management Act and many of the concerns raised in the critique have been dealt with at that scale, while projects such as the Douglas-fir Beetle Project are tiered to those plans. For example:

- **Soil Productivity is protected by meeting Forest Plan standards which apply to all projects on the forest.**
- **Visibility/aesthetics and cultural/historical resources all have forest plan standards which apply to their protection under any management action.**
- **The importance of forest goods and services as they relate to passive use benefits is reflected in national, regional and forest level policy direction. That direction, in turn, is directly influenced by legislative mandate to consider not only the current forest uses, but the preservation of those uses for future generations.**
- **Contingent value surveys are certainly helpful in a research and policy setting to establish in a quantitative manner that even passive uses are extremely important outputs associated with forest management. Once the importance is established in this manner, it is not necessary to "prove" that importance again for each project.**
- **Game habitat is addressed by a Forest Plan standard that calls for thermal cover to exceed 50%.**

Other resources are controlled by the Endangered Species Act (ESA). For example:

- **Fish habitat for species such as the bull trout and effects on the bull trout population comes under the ESA. In this case, the bull trout has what is in effect an infinitely high value because, by law, it has to be protected regardless of economic value.**

Scientific information prepared for the Interior Columbia Basin Ecosystem Management Project (ICBEMP) has been incorporated into many aspects of analysis for the DEIS. As pointed out in the critique, the 155-page Economic Assessment of the Basin (Haynes and Horne 1997) presents information on the importance of National Forest lands for such varied uses as recreation and the storage of carbon in biomass, among others. Estimates were made of the amount of recreation use in the basin and the economic impacts of recreation. In the Economic Assessment, the point was made that, for a variety of resources, forest management activities need to be based on an awareness of basin-wide resource implications of that management.

Tiering a project such as the Douglas-fir Beetle Project to decisions at higher scales, such as the Forest Plans, the Endangered Species Act, and to the scientific findings for Interior Columbia Basin Assessment assures consistency from one project to another while at the same time allowing for very significant efficiency of effort since the same analysis does not have to be repeated at each decision level.

The DEIS failed however to consider the long-term maintenance-restoration costs associated with road (re)construction. Without completing a full accounting of short and long-term costs, one simply cannot determine whether a management alternative will produce a positive financial return on taxpayer investment. The decision to restore roads now is also a long-term budget commitment to maintain roads in the future. The long-term costs need to be included in the financial

and economic analysis in the DEIS as the budget commitments have long-term opportunity costs, in terms of what other programs will not receive funding.

Response: The long-term cost of road construction and reconstruction must be considered in the context of the entire project. The watershed and wildlife sections of the FEIS indicate an overall reduction of roads within the project areas which would result in reduced road maintenance costs, even when the costs of new roads is considered.

One of the objectives of road reconstruction is to reduce environmental effects of the road, which, in turn, reduces the amount of maintenance needed. This is accomplished by providing drainage systems (ditches, culverts, outsloping, dips, cross-drains and surfacing) that are appropriate for conditions and use, and by managing the roads (open or closed) to protect the road and other resources. In other words, reconstructing a road does not increase its maintenance costs, it reduces them.

Regional impacts (employment and income) were not estimated. The DEIS did not estimate the jobs generated from planned restoration activities. The potential job creation benefits of forest restoration will only be realized if planned and implemented with job creation as one of the objectives objective. Information on employment and income from restoration would improve the DEIS. The DEIS would also be improved if planners completed an analysis of the potential jobs lost as a result of each management alternative...The economic impact on hunting businesses and outfitters from the proposed action was not adequately analyzed in the DEIS. The potential impact of management alternatives on non-recreation businesses was also not addressed in the DEIS.

Response: The FEIS has been modified to recognize that additional jobs may occur through restoration activities. However, additional job creation would only occur from activities that are beyond the timber sale, where funding for the projects is not necessarily guaranteed, thus, the job creation is not guaranteed or quantifiable.

Based on the most recent information at the forest level (TSPIRS, 1998), each million board feet of timber harvested on the IPNF annually results in a total of 39.2 jobs and $1,158,000 income for that year (23.1 jobs and $632,730 income on the Colville for 1997). These figures include the impacts associated with harvesting and processing timber plus the impacts of Forest Service salaries and investment and the 25% fund expenditures. It is not possible to say with certainty that each million board feet of timber harvested from this project would have those impacts. A recent analysis of watershed restoration jobs in Forest Service Region 6 (the Pacific Northwest Region), based on 1995-1996 projects, found that an average of 1 full-time direct job resulted from each $70-$75,000 of annual expenditures for restoration projects (personal communication with Dick Phillips, Regional Economist, Region 6). Depending on the size of the impact area, the number of indirect and induced jobs would be between 1 and 2, so the total number of jobs associated with $70-$75,000 of expenditures for restoration would be 2 to 3 (personal communication with Greg Alward, Economist, Forest Service Inventory and Monitoring Institute). This information will be used to estimate total job and income impacts associated with both timber harvest and restoration activities for each alternative.

There is no indication that the project would have job and income effects as a result of changes in outputs in other resources such as recreation. The specialist report on recreation use estimated that some types of recreation may be temporarily displaced from areas where harvest activities are taking place. The effects on recreation are expected to be almost entirely on snowmobile trails, and that would only be the case if contractors chose to winter log. Only one area has a winter logging requirement. If there are effects on a particular snowmobile trail, the effects would be short-term, and not in 100% of the area, such that displaced users would have other opportunities available.

Stumpage prices seem high. The stumpage prices used in the financial analysis are very optimistic and highly suspect. The potential to overestimate stumpage revenues should be of some concern to agency officials and the public because if positive revenues are not generated, the riparian restoration work and the road closure work may not be realized. And, it is the non-commodity restoration work that generates the most economic benefits of the proposed projects. The potential

over-estimation of stumpage prices is based on the following observation: Demand for salvage has historically been weak. Current market conditions are also depressed making it even more difficult to obtain the optimistic stumpage prices used in the DEIS financial analysis. The DEIS does acknowledge the downward pressure on prices from Asian economic problems. Given a past and recent history of over-estimating stumpage prices, the impact of salvage supply on local markets, and the fact that current markets are depressed and could be further depressed if economic problems in Asia, Russia and South America continue, it is not unreasonable to suggest that the stumpage prices used in the DEIS are overestimated. This is especially a concern given that the expected stumpage values analyzed in each alternative were estimated with just a 50% confidence interval... Technical documentation of the models used and analysis completed (e.g. model printouts of estimated stumpage values and cost estimates) should be included in the DEIS. This would be consistent with NEPA by facilitating public participation with non-local owners of the public estate. Indeed, many if not most of the owners of the public estate do not have easy access to project files in a far-away ranger office.

Response: Documentation of the models is presented in Chapter III under analysis methodology, and the outputs are presented in the tables. Most information is available in the EIS and more detailed information will be provided whenever requested.

Undiscounted financial analysis consistent with Assessment recommendations. The evaluation of undiscounted benefits and costs essentially implies a zero percent discount rate. This approach is consistent with recommendations given in the Interior Columbia Basin Assessment.

Response: This analysis, which was not in the DEIS is now included in the FEIS.

Decrease scale of project. Drastically reducing the scale of public investments made in the salvage operation, and monitoring the results from small restoration projects, is a more prudent approach then [sic] the current DEIS alternatives. Given the current risks associated with global commodity markets, a more conservative allocation of taxpayer dollars is appropriate. Decreasing the scale of the project would moderate the impact on local communities and stumpage markets, allow time to monitor revenues and costs to see if they match projections, and allow time to spatially re-assess fire danger to improve the cost-effectiveness of fuel management.

Response: The range of alternatives offers a variety of scales at which the project is analyzed.

The NEPA argument used in the DEIS is not valid. The DEIS provided the following justification based on NEPA for not considering non-market benefits and costs in the economic analysis: Title 40 however does not relieve the agency from completing an economic analysis that fully accounts for the impacts of proposed management alternative on non-commodity values because many of these impacts are quantifiable. ... Provide a full accounting of the economic costs and benefits of each alternative. Methods have been developed to quantify non-market costs and benefits associated with management. Estimates based on these methods should be internalized into the economic analysis completed for each management alternative as part of the NEPA process. If a total economic framework was used, the agency may find that the true economic value of Idaho's and Washington's national forest is in recreation, passive use benefits, watershed protection, and providing habitat for the native fish and wildlife, as well as the less charismatic biotic lifeforms that perform essential ecological functions for society. Under a total economic valuation framework, conserving roadless areas in a "do nothing but restoration" alternative may make economic sense.

Response: The primary economic focus at the project level is to identify economic implications that are unique for decisions made at this management level. The basic management direction for economic analysis of the timber sales is contained in letter 2430, Financial and Economic Analysis of Timber Sales, from the Washington Office dated 5/3/1995 which identifies the Timber Sale Planning and Analysis System (TSPAS) model as a means "...to complete all the necessary calculations and provide the required efficiency information." TSPAS information for this EIS is reported in the Finances sections of the FEIS. In addition, those resource goods and services that are expected to be affected by alternatives considered in this FEIS are included in the disclosure of effects.

The statement in the DEIS "Non-commodity values were not included in this (economic) analysis" was intended to point out that economic values, and more specifically dollar denominated economic values, were

not assigned to non-commodity resources. However, every effort was made to include relevant information for all resources, both commodity and non-commodity, that would be effected by the proposed management activities.

The statement from 40 CFR 1502.23 that says "For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations" gets at the heart of how resources have been valued in this EIS. It does not diminish or ignore the importance of a resource benefit or cost to have it displayed in a qualitative manner. In fact, the benefit-cost trade-offs are more clearly focused when qualitative non-market effects are compared directly to management costs and market values. Experience has shown that attempting to place a common unit of measure, the dollar, on all goods and services leads to extended debate over the magnitude of assigned dollar values rather than focusing on the monetary costs and resource trade-offs associated with the resources in question. Direction from the Forest Plans, scientific papers prepared for the Interior Columbia River Basin, public scoping and management concerns were all used to identify the basket of goods and services that are important to be considered in this EIS. The Summary Comparison Table in Chapter II of the FEIS displays the merits and drawbacks, or trade-offs, of the various alternatives, which meets both the letter and spirit of NEPA requirements in terms of disclosure of economic effects for the alternatives considered in this EIS. In addition the various specialists reports provide the basis in the table for identifying the impacts of each alternative on non-market goods and services.

Fire and Fuels Reduction

CONCERNS ABOUT INCREASING FIRE RISK

Similar Comments Twenty-one individuals commented about their support of the effort to reduce fuels. Several of these commentors felt that the higher fuel loadings resulting from insect-killed trees would increase the risk of an intense fire. An intense fire could affect the local economy, recreation opportunities, and streams. Concern about private property in the urban-wildland interface also was expressed in several letters. In addition to the individual responses, a letter with 28 signatures also was received. This letter stated that "the USFS should aggressively thin the green timber in stands and adjacent stands to sustainable levels to avoid exposing private, state, and industry land to unacceptable fire risk."

Response: All the action alternatives would reduce the fuel accumulations by harvesting dead and dying trees, broadcast burning, underburning, piling and burning, and other mechanical methods as discussed in the EIS. The trend toward a severe stand-replacing fire would be interrupted in treated stands.

PROOF THAT LOGGING REDUCES WILDFIRE RISK

Similar Comments Nineteen comments were received which questioned the use of logging to reduce the risk of fire. Several of these comments requested that more proof be provided that logging would reduce fire risk.

Response: Based on these and other comments received on the DEIS, additional analysis was completed for the FEIS. For this analysis, stands were selected from those used in the fuel accumulation analysis. Stands were selected to represent both a full range of habitat type groups and expected increases in fuel loadings. The Forest Vegetation Simulator (FVS), a tool widely used by forest managers throughout the United States and Canada to predict the effects of various vegetation management actions on future forest conditions, was used. The Fire and Fuels Extension (FFE-FVS) integrates FVS with elements from existing models of fire behavior and fire effects. Model output displays fuels, stand structure, snags, and potential fire behavior over time and provides a basis for comparing proposed fuel treatments (USDA 1998b and USDA 1997c). A full description of the model, input and output tables for all stands analyzed, and

graphs that show the range of outputs are contained in the project file. Chapter III of the FEIS, Fire/Fuels sections, displays representative samples of this analysis, discusses methodologies, and summarizes results. This analysis shows that logging would reduce the severity and intensity of wildfires.

As discussed in Chapter III of the FEIS under the Fire/Fuels sections, fire has been the major disturbance factor that produces vegetation changes in our ecosystems. If the role of fire is altered or removed, significant changes in the ecosystem occur. Fire has burned in every ecosystem and virtually over every square meter of the coniferous forests and summer-dry mountainous forests of northern Idaho, western Montana, eastern Washington and adjacent portions of Canada.

We do not claim that the proposed action would reduce the incidence of wildfire by any measurable means. It is not possible or desirable to "fireproof" fire-dependent ecosystems, but the potential of severe fire can be reduced by proactive land management. Federal land management agencies can mimic natural disturbances, but it is essential for managers to understand that current conditions may be considerably different from those conditions that occurred historically. Reintroduction of native processes such as fire without modification of structural patterns, fuel loadings, and spatial distributions can produce unpredictable and undesirable effects (USDA and USDI 1996). The use of prescribed fire alone for stand restoration would be largely ineffective (with spring burns), or downright harmful and wasteful (dry season burns) (Barrett 1994) and may violate the 1999 appropriations bill.

Individual Comments

Beetle infestation reduces fire loading naturally. It kills trees, causing them to lose their needles, which reduces fire loading without the negatives associated from logging (good).

Response: The effects of the No Action Alternative are discussed in detail in Chapter III, Fire/Fuels section. Additional analysis was completed between the DEIS and FEIS to display more clearly the trade-offs among the available treatment methods. The analysis also showed a change in potential fire types.

If enough trees die and lose their needles, the risk of a sustained crown fire can be eliminated because the tree canopy no longer would contain enough fuel to carry a fire. Individual tree torching could still occur, however.

In this situation, the nature of a surface fire also would change. The structure of dead and live fuels on the ground would be altered. As limbs and tops from the dead trees fall, they would increase the amount of ground fuel available to carry a fire. In addition, regeneration of shade tolerant species and other vegetation would occur as the forest canopy is opened. As the forest canopy is opened, ground-level winds also would increase. This combination of increased dead and live fuels on the forest floor and wind could result in faster rates of spread. For some surface fuel types under severe conditions, the rate of spread of a surface fire can equal a timber crown fire.

The DFB DEIS provides no evidence for its assumption that timber harvest will impede stand-replacing fires.

Response: Various literature sources discuss how stand characteristics affect fire intensity (energy release) and severity (effects of the fire). These studies show that when these stand characteristics are altered, the behavior of wildfires also changes. We do not attempt to claim that proposed management activities would be sufficient to impede wind- driven stand-replacing fires. However, the literature and personal experience suggest that promoting stand characteristics within the historic range would influence how stand-replacing wildfires burn and the effects of such fires.

Some of the documents which support this position include:

- Sensitivity Analysis of a Method for Assessing Crown fire Hazard in the Northern Rocky Mountains, USA (Scott 1998)
- The Influence of Forest Structure on Fire Behavior (Agee 1996)

- **The Effects of Thinning and Similar Stand Treatments on Fire Behavior in Western Forests PNW-GTR-No. pending (USDA 1999)**
- **Effect of Thinning and Prescribed Burning on Wildfire Severity in Ponderosa Pine Forests, INT-95075-RJVA (Pollet et al. 1999)**
- **USDA Forest Service Region One Video: Douglas Hill Incident, Putting Fire Back into the Ecosystem.**

The DFB DEIS fails to disclose research that reveals landscapes that have experienced timber harvest of salvage cuts often experience enhanced wildfire intensity.

There are a number of research articles that are referenced. These include:

- **The Influence of Forest Structure on Fire Behavior (Agee 1996)**
- **Effect of Thinning and Prescribed Burning on Wildfire Severity in Ponderosa Pine Forests, INT-95075-RJVA (Pollet et al. 1999)**
- **USDA Forest Service Region One Video: Douglas Hill Incident, Putting Fire Back into the Ecosystem.**

LOGGING INCREASES FIRE RISK

Similar Comments There were 41 general comments that said they were concerned that logging would cause increased fire risk. Several commentors pointed out that slash and debris left over after logging has a higher risk than no logging. Others also stated that the removal of trees by logging will reduce the amount of shade, and thereby dry the ground fuels faster, making them more flammable.

Response: We agree that the short-term hazard would increase immediately after harvesting because of the increase in ground fuels. As stated in previous response, additional analysis was conducted between the DEIS and FEIS and is presented in the FEIS, Chapter III Fire/Fuels section. This analysis has shown that by treating fuels by burning or piling, the increase in potential fire intensities would be short-term. The analysis also showed that even with lop and scatter methods, because of the relative rapid decay of fine fuels, the intensities of potential fires may not be very different from the No Action Alternative after several years.

Individual Comments
The constant suggestion that these dead Douglas Fir trees are an immediate and serious fire threat also appears to be unfounded. Large diameter trees, which you tell us this bug prefers, are far less of a fire threat than the limbs and slash of said trees. I do not discount the fuel loading but I am informed that small diameter fuel is by far the most dangerous types of material such as small diameter Lodge Pole downed in a jackstraw fashion. A US Government finding was reported in the Spokesman-Review regarding the 1994 Tyee Creek fire in Chelan County, WA. Their conclusion was that particular fire's "origin and progress had little or no relationship to land ownership or whether the land was managed for timber production or reserved for other values." The Tyee Creek fire originated in a logged area before spreading to heavy slash. It "burned equally quickly through both 500 year old virgin stands of timber and extensive stands of 20 year old managed, thinned timber that had been underburned every five years". In other words, it is misleading to suggest that aggressive harvesting of these trees offers any significant assurance against such a fire.

Response: The Tyee Fire burned approximately 140,000 acres on the Wenatchee National Forest on the eastern slopes of the Washington Cascades. The burn occurred on highly variable topography and across numerous plant associations, from low elevation shrub steppe to high elevation subalpine forest. Burn intensity was moderate to severe over much of the burned-over area. Fire suppression had reduced the extent of fires during the past century and extended fire return intervals in all vegetation types. Prior research on stands similar to those within the burn showed a 2- to 7-fold increase in stand density over the past century. In the absence of frequent fires, open pine stands converted to multi-layered stands of pine and Douglas-fir, often having dense understories of saplings and pole-size trees. The conversion of open stands to multi-canopied stands linked ground and crown fuels and the continuity of crown fuels propagate fires across large landscapes. The increased tree cover and density in the forests burned by the Tyee

Fire is consistent with other dry pine forests across the West. Not all trees within the Tyee fire boundary burned however, some were scorched and weakened, others were untouched (Everett, R. L. et.al. 1995)

On areas that transition from dry to moist forest types, the historic forest species composition was mixed with pines and larch playing a more dominant role than that of today. Similar to dry forest types, mixed severity fires are now an improbable occurrence in many transition forests as well. Multiple treatments would be needed to regulate vegetation structure, composition, and associated biomass loadings. Long management horizons may be required to restore unhealthy ecosystems to more sustainable conditions. The most effective means to restore long-term forest health would be density and fuels management, plus regulation of species composition to improve the dominance and distribution of seral species (Harvey, et al. 1995 and USDA 1999).

With regards to fire prevention and fuel buildups, we believe that it can be proven that green trees often burn hotter than dead trees. A matter of resin and other combustibles which are present. Dead and dying trees also have numerous ecosystem service functions. But most importantly, large fires (the scary ones) are weather driven events and we need to not try to fool the public and ourselves that they can be stopped by massive salvage cutting. Thinning close to private property and towns would be an exception but this "purpose and need" should not be abused.

Response: As clarification, green trees and other green herbaceous and small woody material can either make a fire burn cooler or hotter. This difference depends on several factors. When green fuels are lush with a high fuel moisture content, they act as a heat sink and absorb energy from a fire. Higher energy is needed to drive off moisture in the green fuels so that the fuel temperature can be raised to the ignition point. The act of evaporation in itself is a cooling process that lowers or maintains the fuel temperature until sufficient moisture has been driven off.

When the fuel moisture of green fuels is low in relation to the fuel moisture content of dead fine fuels, the green fuels will increase fire intensities. This live fuel moisture content varies for the different fuel models (USDA 1976, GTR INT-30).

We agree that large fires often result from weather-driven events and also do not claim what we would eliminate such events from occurring. However, such activities as thinning adjacent to private property are measures which reduce the risk of crown fires when the ground fuels also are treated to reduce fire intensity. In our alternatives, we identified those areas adjacent to private land where such treatments would occur.

As well, such stands (i.e. stressed by logging), susceptible to increased mortality in the future, will contribute to high fuel loads thus exacerbating the very fire risk the Forest Service seeks to remedy by the proposed action.

Response: The additional analysis completed between the DEIS and FEIS show that the effect of the beetle would be to create more open stands, contributing to increased susceptibility to mortality agents in stressed trees. The FFE-FVS model indicated increased mortality in several stands over the next 10 to 20 years, no matter which treatment would occur. The treatment, which seems to address this concern the best, is to change the species composition by regenerating with seral species.

FIRE RISK CAUSED BY FIRE SUPPRESSION

Individual Comments

I believe the Forest Service Preferred Plan for dealing with the bark beetle infestation in the Idaho Panhandle and Colville National Forests has some serious flaws. Blaming this problem on the Ice Storm of '96 is a simplistic response to a complex situation. I believe the poor condition of these forests are mainly the result of decades of over-zealous fire suppression by the Forest Service which has resulted in an overgrown forest lacking in diversity--conditions ripe for insect infestation. The Forest Service must address its fire policy if it hopes to prevent problems like this from happening in the future.

Response: We agree that the forest health problems on the IPNF and Colville National Forests are complex. In Chapter III in both the Vegetation and Fire/Fuel sections, we discuss some of the reasons causing these forest health problems. One conclusion is that more Douglas-fir exists today than historically. The Ice Storm damage of 1996-97 served as a catalyst to the beetle outbreak. Because more Douglas-fir exists today, the outbreak may be more extensive than would have occurred under conditions of historic species composition.

This comment is responded to in more detail in the section on Federal Wildland Fire Management Policy.

FUEL TREATMENTS

Individual Comments

As for the animals and trees, using small controlled burns as originally occurred in nature should also be promoted.

Response: As discussed in Chapter III, historical fire regimes were highly variable and included large stand-replacing fires as well as small (and large) low and mixed severity fires. An alternative was considered that took this approach but was eliminated from detailed study for the reasons stated in Chapter II of the FEIS.

Let it die, fall over and become fuel loading. Your role as forest resource managers/stewards is to develop burn plans, slash/fuel management plans and regeneration plans on these lands that you've mis-managed in the past by high-grading and lack of fuels management and adequate regeneration plans.

Response: Detailed discussions on events that lead to current forest health problems on the Idaho Panhandle and Colville National Forests are included in Chapter III under Characterization and Existing Conditions. One alternative was using this approach but it was eliminated from detailed study for the reasons stated in Chapter II of the FEIS. The discussions that follow on the Federal Wildland Fire Management Policy also respond to your comment.

There is little if any mention of the use of prescribed burns in the selective harvest units and no mention of prescribed burns in the future to restore fire to the ecosystem for the maintenance of a healthy forest.

Response: Where appropriate species composition allows, underburning is planned for proposed selective as well as regeneration harvest units. These units are listed in Appendix D of the FEIS. Both Alternatives F and G, as well as another alternative which was considered but eliminated, all included prescribed underburning without timber harvest; the latter two prescribed repeat entries. In the discussion of Alternative G in the Fire/Fuels section of Chapter III, the effects on representative stands by underburning is displayed.

There certainly will be additional prescribed burning projects in the future to restore fire to the ecosystem. However, such projects will require separate NEPA analysis once proposed actions are developed.

Another alternative treatment can use prescribed fire to generally thin forest stands. It is common knowledge that land managers have much practice with this technique and can manipulate fire well. Also, depending on when it is applied, prescribed fire perhaps may help diminish some of the Douglas-fir beetle population.

Response: An alternative that considered prescribed fire alone to treat infested areas was considered but eliminated from detailed study for the reasons stated in Chapter II of the FEIS. Alternative G was developed between the DEIS and FEIS to feature restoration activities without the use of commercial timber sales. Federal land management agencies can mimic natural disturbances, but it is essential for managers to consider that current conditions may be considerably different than those conditions that occurred historically. In the case of the Idaho Panhandle and Colville National Forests, the lack of an adequate seral

species seed source would assure long- term failure of vegetative restoration efforts without artificial regeneration of seral species.

Additional response to your comment is included in the Beetles section of the Response to Comments regarding the effects of thinning and burning on beetle populations.

FUEL TREATMENTS IN THE URBAN-WILDLAND INTERFACE

Individual Comments

Additional focus of burn treatments could be on public land adjacent to private structures where property owners have invested in defensible space. Rather than advocating a costly large-scale thinning program, the potential benefits from reducing fire danger to private structures can best be gained by educating homeowners on defensible space and taking responsibility for their own inaction and location choice. Combining fuel mitigation with defensible space provides economies of scale on fire protection. Public investments in reduction of fire danger are likely to be more successful in urban-wildland areas where the private sector has invested in defensible space. In the urban-wildland interface, reducing fire danger requires joint responsibility and joint implementation of public-private investments.

Response: Alternative F focuses treatment on areas adjacent to private lands containing structures. The alternative was expanded between the DEIS and FEIS to include those type of private lands on the Priest Lake and Newport Ranger Districts as well.

Alternatives D and F both include intensive fuels treatment adjacent to private lands in high priority urban-wildland interface areas. The purpose of these activities is to reduce all fuel sizes to reduce the spread rates and intensities should a fire occur. This is in response to cooperation between the Idaho Department of Lands, who have wildland fire control responsibilities in this area, and the Idaho Panhandle National Forests as the responsible agency for land management activities on the National Forest. Most fires that occur would burn away from private lands in these areas; however a backing fire or the unusual event of a downslope wind driven fire could burn from National Forest Lands onto private lands. As discussed in Chapter III, reducing crown density lowers risk of torching and crowning, and reducing surface fuels reduces surface flame lengths and rates of spread allowing Federal, State and Local agencies and fire department to better protect areas that are their responsibility.

The IPNF, the State of Idaho Department of Lands (IDL), and local fire departments are cooperators in a fire prevention cooperative. Members of the co-operative are well aware of factors that contribute to defensible space around structures. Public education is a primary goal of this cooperative. IDL and the University of Idaho Extension Service have been taking a lead role in public education about defensible space and urban interface wildfire protection. The latest research (USDA 1999c) explores necessary widths of vegetation treatment zones and use of fire resistant roofing material. Several brochures have been developed addressing wildland urban interface topics. Defensible space is addressed in these brochures as well as other protection tactics such as: the need for structure owners to periodically clean forest debris from roofs; locate wood piles and other flammable material away from structures; instructions to close doors and windows when Interface fires do occur to prevent sparks from igniting flammable materials inside structures. The IDL also has started a series of workshops that target homeowners interested in creating a more defensible space around their property.

In the short term focus burn treatments on the "beauty strip" along roads to increase the size of fire buffer and reduce fuel loads in land adjacent to roads where human-linked ignition sources are more likely to occur. The association of roads with fire suggests that a cost-effective approach may be to concentrate initial burn treatments in stands adjacent to, or in close proximity to, roads and highways. Burning along roads, for example, would increase the width of the fire buffer that may help reduce the spread and hence control suppression costs of future fires. Restoring forest along roads could also generate public education benefits on the role of fire and be used to gauge the public's perception and acceptance of restoration management. This information would be useful for addressing the agencies dilemma of discerning society's management wishes in the absence of market forces and price signals for ecosystem goods and services.

Focusing prescribed fire efforts along the roaded corridor could however, encourage the spread of exotic species. To better understand this potential threat, experiments that monitor the spread of natives and non-natives into the burn portions of the stand should be included as part of the restoration project.

Response: We agree that roaded and developed areas are more at risk for fire starts. A fire risk assessment recently completed for the North Zone of the IPNF confirms that the risk of fire starts is highest in developed areas classified as urban and rural. A greater density of human-caused fires occurs in such areas. Higher fire numbers were also indicated in some roaded areas. A similar fire start density analysis on the rest of the Idaho Panhandle showed the same trends. This information is included in the project file. Alternative F was developed to treat the areas with the most obvious risk of human-caused fires. Roads are used as anchor points for treatment area boundaries whereever possible.

The purpose and need for the proposed action is identified in Chapter I. Fuels reduction is just one of many factors of the purpose and need. To limit activities to areas adjacent to open roads would not be responsive to the purpose and need for forest vegetation and aquatic restoration. The trends displayed in Chapter III, Fire/Fuels section concerning the increases in potential fire intensities also would not be addressed.

A suggestion was made to adjust the slash disposal intensity in proportion to the distance from private land boundaries. The closer to private the greater the slash treatment. The farther away the less slash treatment and the more risks we're willing to live with.

Response: Fuel treatment prescriptions under Alternative D have been modified to incorporate this strategy around high priority urban interface areas such as the Hayden Face on the Coeur d'Alene River District.

UNITS OUTSIDE OF URBAN-WILDLAND INTERFACE

Similar Comments Seven commentors remarked that many units are located outside the urban-wildland interface and away from private land. They felt that these units do not meet the intent of "preventing fire damage risk to private property."

Response: The Purpose and Need for the proposed action is identified in Chapter I of the FEIS. Reducing fuel buildups and intensities of wildfires adjacent to private lands is just one of objectives which is discussed. If a fire were to occur, the intensity of a wildfire would be reduced by treating these high fuel accumulations in the urban-wildland interface. High fuel loadings, however, are not confined to only those areas adjacent to private land. Treatments outside the urban-wildland interface would be consistent with the Purpose and Need.

In response to the issue of wildland urban interface, Alternative F was developed to focus treatments in the wildland urban interface. As displayed in the DEIS, this alternative considered treatment in areas adjacent to private lands on the Coeur d'Alene District only. Alternative F has been expanded in the FEIS to include infested areas adjacent to private lands on the Priest Lake and Newport Ranger Districts.

FEDERAL WILDLAND FIRE MANAGEMENT POLICY

Similar Comments There were three comments that said the EIS does not address how the project relates to the Federal Wildland Fire Management Policy and Program Review (1995). One commentor said that although they agree with the Forest Service effort to reintroduce fire into the ecosystem, they felt the Forest Service is not willing to "embrace measures necessary to address this issue."

Response: A discussion of the Federal Wildland Fire Management Policy and Program Review has been added to the Chapter III discussion, under Regulatory Framework. Fire suppression policy from the early 1900s until the late 1970s was one of total suppression. Only recently has fire policy been modified to recognize the importance of fire in balancing vegetation cycles within the temperate forest. The Federal Wildland Fire Management Policy and Program Review was chartered by the Secretaries of the Interior and Agriculture to examine the need for modification of and addition to Federal fire policy. The review recommended a set of consistent policies for all Federal wildland fire management agencies organized around the following five major management program components:

- Coordinated Policy and Program Management,
- Role of Fire in Resource Management,
- Use of Prescribed Fire and Fuels Management,
- Preparedness and Suppression, and
- Wildland/Urban Interface Protection.

Fire management plans, programs, and activities are integral components of land and resource management plans and their implementation. Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands. An increased emphasis on firefighter and public safety and the reordering of priorities for natural and planned ignitions are concepts that will be incorporated as appropriate into forest plan revisions (USDA 1997b). The first step in fire management planning for the Idaho Panhandle and Colville National Forests will be the scheduled revision of the Forest Plan. This revision is necessary to obtain public comments regarding the change of management direction concerning fire use and suppression. Actions need to be consistent with the existing Forest Plans until they are revised.

The IPNF, in cooperation with the Colville National Forest, is currently preparing a fire plan for adjoining wilderness and roadless areas on the Sullivan Lake and Priest Lake Ranger Districts. This is an example of the Federal Wildland Fire Management Policy where our existing Forest Plans allow wildfires to burn to meet management goals and objectives.

The task of management for public lands is properly determined by the public. Natural disturbance regimes included severe and rapidly moving forest fires that sometimes exceeded 100,000 acres. The public is not advocating a return to natural disturbance regimes that include these sorts of events. Over 500,000 people now live in an area that historically was inhabited by 5,000 - 10,000 Native American people. While the full range of historic fire regimes was a functional part of the historical natural ecosystem, we are now operating in an environment of a changed human context. Certainly, the full range of historic disturbance patterns would today generate significant threats to human life and property. Also, in areas where white pine has been decimated by white pine blister rust, and/or where white pine, larch, and ponderosa pine have been removed by past high-grade harvesting, there may not be sufficient seed source to restore these historic forest species, even with natural disturbance regimes. Likewise, it's unclear how natural disturbance patterns would restore improperly built road stream crossings and undersized culverts, or bring back white pine, larch, and ponderosa pine where the seed source no longer exists.

In response to public comment, Alternative G was developed for the FEIS to show effects of treating fuel accumulations and forest health with prescribed fire alone. This alternative is presented in the FEIS. What we found, however, was that most of the areas affected by the beetle no longer contain the appropriate species for such an alternative to be effective.

FIRE AND FUELS ANALYSIS

Individual Comments

We are very skeptical of the accuracy of the data which is the source of the two tables on pages III-182. Timber stand data base information, without extensive field survey validation, will always be suspect. Additionally, it doesn't make

sense that "Current Acres" in these tables for different alternatives are different. If "Fuel Accumulation Risk" numbers are to be useful, data on forest areas outside of cutting units should matter.

Response: The Timber Stand data base is based on the results of extensive field surveys. The stand reports of these surveys include a statistical analysis of the accuracy of the data.

We agree that the way the data was presented is confusing. To make this information more understandable, the presentation of fuels data has been changed in the FEIS to be more consistent with the vegetation section. In the EIS, the "Current Acres" represent the acres of fuel increases remaining after implementation of an alternative based on existing infestation levels. "Projected acres" represent the acres of fuel increases remaining after implementation of that alternative based on the projected extent of the infestation. All figures represent only fuel increase accumulations resulting from the Douglas-fir beetle infestation. In this context, Alternative A would show the maximum "Current Acres" and "Projected Acres" with each alternative treating a portion of those acres.

Reassess fire danger using additional variables beside fuel accumulation risk, perhaps with the help of a fire behavior simulation model. Fire behavior models can provide a sophisticated spatial analysis of fire danger. Fuel accumulation risk is a poor proxy for fire danger. Additional environmental and human variables must be considered to make fuel treatments more cost-effective.

Response: Additional analysis has been completed and included in the documentation for the FEIS. The Forest Vegetation Simulator (FVS) was used for this additional analysis. The Fire and Fuels Extension to FVS (FFE-FVS) integrates FVS with elements from existing models of fire behavior and fire effects. The new model extension provides the capability of simulating the effects of stand development and management actions on fuel dynamics, fire behavior and fire effects. The model also represents the effects of fire on stand characteristics and stand development. The model simulates additions to fuel pools from stand dynamics and management activities, and the removal of fuels through decay, mechanical treatments and prescribed or wildfires. Various types of fuels are represented, including ladder and canopy fuels, and surface fuels in several diameter classes. Fire behavior and fire effects, such as fuel consumption, tree mortality and smoke are modeled. FVS simulates the regeneration, growth and subsequent development of the remaining stand. Model output displays fuels, stand structure, snags, and potential fire behavior over time and provides a basis for comparing proposed fuel treatments (USDA, 1998b and USDA 1997c). Full description of the model, input and output tables for all stands analyzed, and graphs that show the range of outputs for all stands are contained in the project file.

As addressed in Chapter III, fire spread rates and intensities were predicted for various fuel types using the BEHAVE model. BEHAVE is an interactive computer system designed to predict or estimate fire behavior characteristics needed for fire management purposes. It is composed of the latest state-of-the-art simulation models developed for fire and associated fuel and environmental parameters. BEHAVE has evolved over several years in conjunction with the material developed for training fire behavior officers at the National Advanced Resource Technology Center in Marana, Arizona. The parameters that the Douglas-fir beetle would affect are the fuel models, as affected timber stands go through successional changes. Fuel models that describe how a fire would react within the stand would also change. A fuel model is defined as a set of parameters that define fuel input to the fire spread model.

The DFB DEIS does not offer an adequate baseline in the form of an analysis of hazard fuel accumulation in the absence of a Douglas-fir beetle outbreak.

Response: Additional analysis, as previously discussed, has been completed and included in the documentation for the FEIS. To establish baseline conditions, stands were selected from those used in the fuel accumulation analysis. These stands represent a range of habitat type groups as well as a full range of expected increases in fuel loadings. Fuel loadings were generated for these representative stands using various management scenarios. Stand development resulting from the beetle infestation was analyzed over time as well as if the outbreak had not occurred .

Chapter III of the FEIS, Fire/Fuels sections, displays representative samples of this analysis, discusses methodologies, and summarizes results. Full description of the model, input and output tables for all stands analyzed, and graphs that show the range of outputs for all stands are contained in the project file.

The DFB DEIS fails to disclose the well-known controversy debated by fire scientists over whether stand-replacement fires are "weather" or "fuel" driven events.

Response: Fire scientists do debate whether stand-replacing fires are "weather" or "fuel" driven events. Forest types that historically experienced high severity fire regimes tend to fit into the weather hypothesis. Mixed-conifer forests that included ponderosa-pine as a dominant had a historical fire regime of frequent fires. These fires were typically low-intensity and low severity These forest types provide ample evidence that fire severity, even in large fires, can be fuel-dependent (Agee, James K.; 1977).

Recent fires on the Idaho Panhandle National Forests have been both wind and fuel-driven. Two large stand-replacing fires occurred on the Kaniksu National Forest in 1967 (maps on file, IPNF). One fire (Sundance) displayed the shape characteristic of a wind-driven fire. The other (Trapper Peak) exhibited a shape which was a combination of both a wind-driven and a topography limited/fuel-driven event. Historically, very large fires on the IPNF appear to have been associated with regional climate patterns. This suggests that wind combined with regional drought conditions was the driving factor for the largest fires.

The DFB DEIS misrepresents the risk of crown fire.

Response: Crown fires can occur in any stand that contains fuel characteristics susceptible to crown fires. Van Wagner's two-equation method of linking surface and crown fire behavior predictions has been adapted to the fire behavior prediction system used in the United States. Two indexes of crown fire hazard, the Torching Index and Crowning Index, were derived from this adaptation. A sensitivity analysis has been recently completed that explores the sensitivity of these indexes to surface fuel, crown fuel, and site characteristics (Scott, J.H. 1998). By all the sensitivity measures explored, the onset of crowning is most strongly affected by crown base height and surface fuel loading. Foliar moisture content only weakly affects crown fire initiation in the coupled model. Crown bulk density appears to be the most important variable in determining a stands susceptibility to active crown fires, with foliar moisture content a distant second. Crown moisture content considered in the sensitivity analysis ranged from 70 to 120 percent. In dealing with dead crowns, the low crown moisture content is a very important characteristic for determining crown fire hazard (Keane, Robert 1999 and Scott, J. H. 1999)

Vegetation and fuels conditions will change over time as a result of the infestation. At the onset of the beetle infestation, forest managers were concerned about the potential for increased crown fire risk. The initial effect of the infestation has been to change the crown fuel characteristics in affected stands. During August of 1998, red trees as well as faded green trees became obvious in the canopy. More dead trees will continue to appear for the next two or three years. By mid-summer of 1999, the moisture content of the fine fuels in these dead crowns will decline to the single digits. A reduction of the crown fuel moisture can have two distinct consequences: one being that the reduced fuel moistures allow lower surface fire flame lengths to initiate torching, and two, that milder weather conditions can sustain a crown fire (NWCG, 1992). In stands where the beetle mortality is spotty, increased passive crown fire (individual and groups of trees torching) could be expected if a surface fire burned under the groups of killed trees. This scenario would be short-lived because the needles of the dead trees would fall to the ground within one or two years. This would reduce the density of crown fuels and would leave the heavily affected stands with insufficient fuel to sustain a crown fire. In other stands, because of the increased surface fire intensities resulting from more ground fuels, the FFE-FVS model predicted that lower wind speeds would be necessary to initiate and sustain a crown fire.

Premise for management may be wrong. One of the primary justifications given in the DEIS for the proposed action is the need to address the fuel accumulation risk that may potentially lead to increased fire danger. Analysis of USDA

Forest Service data indicates that the area of National Forests burned by wildfires in the last decade has indeed increased over the long-term average. This short-term trend seems to support the concern expressed in the DEIS, for example, that fires have grown beyond long-term historical precedent. However, Fig. 1 also shows that the area burned recently is consistent with the area burned prior to 1930, the beginning of agency fire suppression efforts. Fire suppression simply delayed the inevitable.

Response: We agree that the increase in burned acres is, in part, a response of the ecosystem to the last 60 years of fire suppression. As addressed in Chapter III Fire/Fuels, we also believe that the effects of wildland fire are different now. This change has resulted because the species composition and structure of our forests are much different now than earlier in the century and because more people are living in the ecosystem.

It is therefore important to consider the possibility that current forest management may actually increase the risk of fire in the future. Consider for example, the implications of implementing the large scale thinning and harvesting operation called for in the DEIS. Logging can be implemented throughout much of the year and the "economic need" to log quickly will leave the forest with extensive areas of cutover land in need of burning. The ability of the agency to implement burns is limited by season, weather, air quality restrictions and other environmental concerns. At a very minimum, the standards and guidelines in the DEIS and the contractual arrangement used should include assurances that the scale of any thinning operations will be constrained by the scale of the burning operations.

Response: The Idaho Panhandle and Colville National Forests currently do not have a backlog of scheduled burning operations on the books (i.e. Northern Region TSMRS and Pacific Northwest Region VEGIS and activity databases). While the acreage of the Douglas-fir beetle infestation may seem quite large, it is no larger than the average annual program has been over the last decade. Any timber sale that results from this project would replace proposed timber sales, and therefore not increase the burning workload. The amount of prescribed burning that would result from Alternative D approximates 8,000 acres over a five-year period on the three districts. This acreage is similar to recent programs (IPNF Annual Fire Reports, 1987 through 1998, in project file). The fire managers at these districts have managed similar programs in the past.

Part of the stated P and N is to reduce fuel accumulation. Yet, you have failed to employ fire effects modeling such as FOFEM. Please explain.

Response: Additional modeling has been completed for the FEIS. FOFEM (First Order Fire Effects Model) was used to predict the particulate emissions for all alternatives. The Fire/Fuels Extension to the Forest Vegetation Simulator (FFE-FVS) was employed on a representative set of stands to model the intensity and severity of wildfires. FOFEM is included in this model to predict effects (severity).

Yes, I concur that fire hazard due to earlier discussed measures (or lack of measures) is high and will increase. Fire is the disturbance factor against which the resilience of Interior West forest, particularly those on warm/dry sites is critically degraded. FIRE HAZARD REDUCTION ==>FOREST RESILIENCE RESTORATION through spatial and temporal arrangement of forest structure, increased representation of tree species resistant to fire, and prescribed fire management SHOULD BE THE HIGHEST PRIORITY ON SITES WITH HIGH VALUES AT STAKE. This will require a landscape based and well integrated approach with inputs from other resource specialists, tribal and NGO representatives. To make fire hazard abatement measures a key feature justifying logging under the DFB project is not a good tactic in my opinion. It strengthens the perception that the proposed project is not much else but a massive logging operation in disguise.

Response: The purpose and need for the proposed action is identified in Chapter I. Fuels reduction is just one of many factors of the purpose and need. Restoration of forest resilience through reintroduction of seral tree species is a high priority on the IPNF and Colville National Forest. Landscape-integrated planning is ongoing on the Forest in preparation of the planned Forest Plan revision. Part of this process will be an integrated approach to identify where to concentrate vegetation restoration efforts.

Analysis of fire danger is incomplete The DEIS discusses fire danger but fails to spatially analyze it in a scientifically credible manner. Unfortunately the DEIS fire danger analysis relied mainly on fuel accumulation risk which may not be an important variable for estimating fire danger - which is really what the public is concerned with. The DEIS would be greatly improved if the analysis of fire danger included other environmental and human variables. This information would be useful for local residents and would help the agency concentrate restoration efforts on areas with the highest fire danger, which may not necessarily be in areas with big trees distant from private structures. Given the long term costs and budget commitment involved with fuel management, it is crucial that fuel treatments are carefully located to increase effectiveness and minimize costs. It is not apparent that the fuel treatment in the DEIS were carefully located for effectiveness or cost minimization. This is partially a result of using fuel accumulation risk, which is an incomplete metric for fire danger. In addition, location of the treatments seems based on where the large trees are and having a positive financial return, rather than effectively reducing fire danger. The DEIS would be greatly improved if a more science-based spatial assessment of fire danger was completed.

Response: The Idaho Panhandle National Forests Draft Wildfire Prevention Plan, completed in 1998, was reviewed and included in Chapter III. The Wildfire Prevention Plan evaluated these areas based on wildfire risk (i.e. fire danger). The major components in this evaluation included fire history, fuels, topography and values at risk. The evaluation determined the wildfire risk was high for the Coeur d'Alene Face (including Hayden Face), Lower Coeur d'Alene River, and Priest Lake Face considering the annual average number of years, current fuel accumulations, and values at risk . The other areas were a combination of high to moderate ratings. Densities of fire starts between 1980 and 1997 in the IPNF and Colville project areas were used to determine areas prone to fire activity. Opportunities to reduce these risks are available with prescribed fire and mechanical fuels treatment adjacent to private ownership.

Additional modeling has been completed for the FEIS. The Fire/Fuels Extension to the Forest Vegetation Simulator (FFE-FVS) was used on a representative set of stands to model intensities and severities of wildfires should they occur. Full description of the model, input and output tables for all stands analyzed, and graphs that show the range of outputs for all stands are contained in the project file. Chapter III of the FEIS, Fire/Fuels sections, displays representative samples of this analysis, discusses methodologies, and summarizes results.

As addressed in Chapter III, fire spread rates and intensities were predicted for various fuel types using the BEHAVE model. BEHAVE is an interactive computer system designed to predict or estimate fire behavior characteristics needed for fire management purposes.

The DEIS made several references that existing surface fuel loads are already at abnormally high levels due to past fire suppression, but the DEIS offered no site-specific analysis or disclosure of estimated amounts of additional fuel load accumulation from activity fuels. Nor did the DEIS analyze or disclose potential fire intensity or severity from burning additional activity fuels on top of existing abnormally high natural fuel loads.

Response: Based on additional analysis, literature searches, and consultation, we do not believe that the surface fuel loadings are abnormally high. Historic evidence suggests that such fuel loadings did occur in the past and were a part of the historic fire regime in transition and moist forests. Such fuel loadings may have influenced if fires were low to mixed severity or lethal stand-replacing fires. This is discussed further in the FEIS, Fire/Fuels section of Chapter III.

The DEIS claims that all activity fuels will be treated through yarding, understory burning, hand-piling and burning, or lop-and-scatter, yet the agency offered no analysis of the environmental effects of these activity fuels treatments. These are not "mitigation" measures for the commercial logging--they represent their own set of potential adverse environmental impacts. For example, top-yarding will cause additional soil disturbance, particularly to the litter and duff layer, as the mass of branches is dragged along the ground. Some breakage of small limbs will be inevitable, adding to the hazardous surface fuel load. Hand-piling and burning also creates significant impacts from the intense and prolonged duration of heat generated by burning slash. This heat can effectively "sterilize" the soil immediately below the hand-pile, causing long-term adverse effects on soil productivity. Also, these sites are susceptible to colonization by invasives, and the DEIS failed to analyze this risk. Finally, the DEIS failed to analyze the extreme fuel hazard presented by lop-and-scatter

methods. According to van Wagtendonk's (1996) research in the Sierra Nevada Ecosystem Project, lop-and-scatter methods had the most detrimental effects on rate of fire spread, fireline intensity, and fire severity of all other fuels treatments methods.

Response: Additional analysis completed between the DEIS and FEIS addressed the effectiveness of various slash treatment methods in reducing potential fire intensities. Lop and scattering slash resulted in the least effective treatment method and resembled the fuel loading of the No Action Alternative because of the level of mortality that is being caused by the Douglas-fir beetle. Yarding of tops was not much more effective than lop and scatter. Because the majority of harvested trees would be dead where this method was employed, considerable breakage would occur. Based on past experience, we assumed that there would be up to 50 percent breakage because the dead branches and tops would be more brittle than green trees.

Yarding trees with tops attached from the fall point to the designated skid trail creates very minimal soil disturbance. The continuous yarding over designated skid trails would cause soil disturbance and is addressed in the FEIS under detrimental soil disturbance (compaction and displacement). Piling and burning of slash is also part of the detrimental disturbance analysis. Specific mitigation measures for piling and burning are included in Features Common to all Action Alternatives in Chapter II of the FEIS.

FAILURE TO DISCLOSE THAT PROPOSED COMMERCIAL LOGGING WOULD INCREASE HAZARDOUS FUEL LOADS

Numerous studies by Forest Service researchers and independent fire scientists have determined that commercial logging increases hazardous fuel loads, resulting in increased fire intensity and severity, especially if activity fuels (i.e. logging slash) are left on site (Olson and Fahnestock 1955, Countryman, 1955; Fahnestock, 1960; Maxwell and Ward, 1976; Anderson, 1982, DellaSala, Olson and Crane, 1995; Omi, 1997). The landscape of the Idaho Panhandle and Northeastern Washington already suffers from excess surface fuel loads in the form of natural fuels accumulated due to fire suppression and activity fuels left untreated from previous logging. The Beetle Project offers no plan to reduce this existing load of surface fuels outside of timber sale units.

Response: We concur that commercial logging can increase hazardous fuel loads, especially if the activity fuels are not treated. Past selective logging of large green trees has increased fuel loadings.

Hazard reduction underburning outside of harvest units has been included in Alternatives D and F. Alternative G includes underburning in areas where this treatment alone would trend stands towards desirable composition and structure. Alternative D includes underburning in areas that are highest priority for fuels reduction that would also meet visual quality. All these treatments would reduce the existing load of surface fuels. As discussed earlier in the response about the Federal Wildland Fire Management Policy, there is a reordering of priorities for treating these areas of existing load of surface fuels.

Additionally, the Project makes promises to treat all activity fuel, yet the DEIS failed to disclose the agency's historic neglect of activity fuels in select-cut stands, and the current backlog of untreated logging slash. The DEIS failed to disclose the environmental effects of continuing this legacy in the Beetle Project. Thus, if the Idaho Panhandle and Colville National Forests fail to effectively treat logging slash, it will increase hazardous fuel loads that could pose relatively long-term fire risks. Nowhere in the DEIS is there quantitative data disclosing the estimated amounts (according to size class and tons per acre) of new activity fuels added to the ground surface, the degree and nature of wildfire risk in slash-laden logged units, the hazards of slash loads mixing with existing natural fuel loads or future successional dynamics, or estimated suppression costs in the event of a typical worst case scenario of wildfire burning through untreated logging slash. The FEIS needs to include this essential information, and needs to better describe top-yarding by helicopters and the minimum size at DBH of trees to be extracted.

Response: As discussed above, we recognize that past logging has increased fuel loadings. Currently, however, there is not a fuels treatment backlog for past harvest areas identified in the Northern Region TSMRS, and the Pacific Northwest Region VEGIS and Activity databases. Various levels of fuel treatment have occurred in past harvest units including both burning or mechanical treatments. The

prescribed fuel treatments were implemented for these stands. The level of remaining fuels varies in these treatment areas. In some areas of past selection cuts, the species composition of the leave tree largely consists of trees with little resistance to fire. In these areas, fire was not used to treat the logging slash.

The Douglas-fir beetle project is different from a "high-grade" timber sale. Instead of logging the biggest best green trees, the project concentrates on removing trees infested and killed by the beetle. When the majority of the trees in a stand are killed by the beetle, the Idaho Panhandle and Colville Forests are using this opportunity to regenerate these stands to the seral species that historically occupied more of these forest types.

Yarding of tops with helicopter has been reduced in the FEIS preferred alternative due to the poor economics involved with helicopter harvesting. Due to estimated breakage of brittle dead limbs, yarding tops has been determined to be marginally effective.

FAILURE TO DISCLOSE THAT PROPOSED COMMERCIAL LOGGING WOULD EXTRACT LARGE FUELS WITH RELATIVELY LOW FLAMMABILITY WHILE NEGLECTING MORE FLAMMABLE FINE FUELS

The primary reason to reduce hazardous fuel loads is to aid fire suppression objectives, yet the Project has prioritized the extraction of large-diameter commercial-grade timber which plays a minimal, almost incalculable role in the ignition and spread of wildfires. In the BEHAVE fuel model used to predict fire behavior, only dead fuels less than three (3) inches in diameter and live fuels less than one-quarter (1/4) inch are used to predict fire behavior. The agency has inexplicably and without merit decided to focus on the least flammable part of the standing and downed trees for "fuels reduction" without adequately disclosing their effects on fire behavior. An appropriate hazard abatement technique would be to treat the "red needle" tops and small-diameter limbs through prescribed understory burning after these finer fuels have fallen to the ground surface. Removing the large stems of the standing and downed mature trees this summer would do nothing to mitigate the primary fire hazard of the "red needle" tree tops and other fine fuels.

The Project implies that removing the bug-killed trees would reduce the potential for high intensity wildfires that might threaten private property, yet the DEIS failed to explain why the agency has prioritized the fire intensity of burning logs rather than the rapid fire spread of the fine fuels as the main issue or effect of concern for adjacent private property owners. Thus, from the standpoint of protecting private property, the main concern for fire suppression containment objectives should center on reducing fire spread and fireline intensity through reduction of abnormally high fine fuel loads, not reducing large-diameter snags and logs.

The "danger" of burning snags and large-diameter logs is vastly overrated, apparently for the purpose of scaring the public into supporting commercial timber extraction out of the belief that people fear fires more than they hate stumps. Even if large snags and logs were subject to a high-intensity wildfire event, it would be extremely rare to have 100% of their biomass completely consumed by the fire. Ground fuels would be exhausted and weather would change long before the so-called "10,000 hour fuels" (lasting 417 days!) were consumed. The effects of burning large-diameter logs would be highly localized, too, and would not threaten private property unless the logs were located directly on those properties. The FEIS should disclose the above information on the naturally low flammability of large fuels compared to the higher flammability of fine fuels. To repeat, the primary fuel hazards that would cause large-scale wildfires are the fine surface fuel load. These surface fuels feed rapid rate of spread, high fireline intensity, and account for large-sized wildfires. Prescribed fire is the only economical and ecological means of managing these surface fine fuels.

Response: Snags and logs provide valuable wildlife habitat, provide required organic matter for future soil productivity, and contribute to fisheries habitat as large woody debris input into streams. Logs may initially reduce erosion on unvegetated slopes due to wildfire. An excess of snags and logs, however, contributes to excessive fuel loadings and presents a future fire hazard. Tree densities in the Tyee pre-fire forest were in excess of historical levels; now, snag and log densities are much greater than historical levels and represent a hazard to the future forest. A future forest that contains excessive tree densities and excessive quantities of coarse woody material from a previous fire has the potential to burn more severely than a recent catastrophic fire (Everett, R.L. et al. 1995). These conditions are similar to those found by Leiberg (1897) that historically contributed to stand-replacing fires.

We recognize that the current generation of fire behavior/severity models only considers fuels three inches and smaller. Fire managers know through experience that heavy accumulations of larger fuels increase

the duration of the flaming and smouldering phases of a fire and therefore increase severity. A recent study on vegetation response after wildfires in Oregon (USDA 1998c) found that intensity and severity increased in some fires where heavy fuels were present. We recognize that various research results and opinions throughout the fire community on the topic of logging and associated wildfire risk may reach different conclusions. In the majority of the research, lopping and scattering has been shown to be the worst fuel treatment method for reducing fire risk and thinning or regeneration harvesting with underburning to be the best.

The most recent Douglas-fir beetle outbreak on the Idaho Panhandle National Forests occurred in 1987 and 1988 on the Coeur d'Alene River and St. Joe River Ranger Districts. Three of these sites in the Eagle Creek Drainage on the Coeur d'Alene River Ranger District were studied to determine the fuel loading potential from killed trees and the amount of fuel on the ground and available for wildfire. Fuel surveys found that approximately one-quarter of the available fuel (from beetle- killed trees) was on the ground. The limbs over one inch were still sound. Tree boles were suspended above the ground and still provided sound fuels. Fuels less than one inch were mostly absent due to decay. The results of this study are further described in Chapter III, Fire/Fuels section with supporting documentation located in the project file.

FAILURE TO ANALYZE EFFECTS OF PROPOSED COMMERCIAL LOGGING ON FIRE RISK

We are concerned that the DEIS failed to provide sufficient quantitative data on fire risk, such as the probabilities of large-scale fire occurrence, predicted fire sizes, rates of spread, intensities, severities, and mortality effects of wildfires occurring in both treated and untreated stands. The public and decisionmaker cannot adequately assess the tradeoffs of effects of the proposed action alternatives versus No Action without assessments of fire risk. The DEIS failed to give site-specific quantitative data on existing and predicted changes in fuel loads, fuel models, and fire probabilities for both treated and untreated stands and the No Action alternative.

Response: As discussed above, additional analysis was completed between the DEIS and FEIS. Different models were used to analyze changes in fuel loads and fuel models for both treated and untreated stands and the No Action Alternative. Model outputs display live and dead fuels of various sizes, stand structure, snags, and potential fire intensities and severities over time. Full description of the model, input and output tables for all stands analyzed, and graphs that show the range of outputs for stands analyzed are contained in the project file. We also explored how different management actions would affect potential fire behavior in these stands, See Chapter III, Fire and Fuels section for representative samples of this analysis, discussion of methodologies, and a summary of results.

In addition, a fire ignition density analysis was completed for all portions of the Idaho Panhandle and Colville National Forests that considered fire starts between 1980 and 1997 (project file). Historic fire occurrence and size prior to 1930 was compared to 1930 to present (project file). It is obvious from looking at these maps that the fire cycle has been interrupted.

FAILURE TO INCORPORATE RELEVANT INFORMATION FROM THE INTERIOR COLUMBIA BASIN ECOSYSTEM MANAGEMENT PROJECT (ICBEMP)

The Beetle Project DEIS confesses that past fire suppression and timber harvest have had significant effects on vegetation and fuel loads within the Project area, yet fails to explain how the Project's business-as-usual approach to commercial logging and firefighting will do anything to alleviate trend toward higher-severity fire regimes. In fact, ICBEMP concluded that continued traditional Forest Service management for commodity timber extraction will lead to ecological disequilibrium. The FEIS needs to disclose the above relevant passages from ICBEMP and disclose how proposed Project activities will lead to different outcomes--if at all--from the degraded ecological conditions of managed landscapes described in ICBEMP.

Response: ICBEMP findings are included in Chapter III, Fire and Fuels section of the FEIS. ICBEMP discussed trends on a regional basis. The causes of departure from historic conditions within the Beetle Project area are discussed in detail in the FEIS in the Vegetation and Fire/Fuels sections under Characterization and Existing Conditions.

ICBEMP finds that, in general, smaller trees should be removed and underburning completed to restore historical vegetation patterns. Since the Douglas-fir beetle is killing the larger Douglas-fir, and forests on the IPNF and Colville NF lack historic species composition, understory removal and burning would not restore historic structure and species. According to ICBEMP, federal land management agencies can mimic natural disturbances, but it is essential for managers to consider that current conditions may be considerably different than those conditions that occurred historically. Reintroduction of native processes such as fire without modification of structural patterns, fuel loadings, and spatial distributions can produce unpredictable and undesirable effects (USDA and USDI 1996).

FAILURE TO DISCLOSE THAT PROPOSED COMMERCIAL LOGGING FACILITATES FIRE SUPPRESSION/EXCLUSION GOALS, CAUSING INDIRECT AND CUMULATIVE EFFECTS

The DEIS was grossly inadequate in disclosing the beneficial ecological roles and effects of wildland fires. The benefits of fire go beyond its effects on fuel loads and stand densities, but also accrue to soils, wildlife, watersheds, airsheds, and disturbance processes. The DEIS fails to explain away the contradictions between the understanding of the adverse ecological effects caused by past fire suppression and the agency's intention to continue future fire suppression. This violates NEPA (CFR 1502.24) for failure to maintain professional and scientific integrity. Failure to analyze and disclose the significant indirect and cumulative effects of continued fire suppression/exclusion would also violate NEPA (CFR 1508.27). The FEIS must disclose this vital information.

Response: The ecological effects of fire suppression have been well-documented by ICBEMP and other reports. The FEIS has incorporated ICBEMP and include these findings in Chapter III. As discussed earlier in the response regarding the Federal Wildland Fire Management Policy, the first step in changing current management is the revision of the Forest Plans. Actions need to be consistent with the Plans until they are revised. As discussed in a previous comment, we need to recognize that we do not and should not expect to receive public support for letting fire play its natural role everywhere, especially in the lower-elevation developed areas near private lands.

The continuation of fire suppression/exclusion is expressed as the No Action alternative. Documentation of the effects of this alternative, as displayed in Chapter III, assumes the continuation of this current management direction.

FAILURE TO DISCLOSE THAT FORESTS IN COOL-MOIST BIOPHYSICAL ZONES ARE STILL WITHIN THEIR HISTORIC RANGE OF VARIABILITY FOR STAND-REPLACING FIRE

The majority of the Project area is located within the cool-moist biophysical zone. The natural fire history of cool-moist biophysical environments is highly complex, and includes the full range of fire behavior and effects from low to moderate to high fire intensity and severity. Indeed, stand replacement fires are generally the rule rather than the exception, in long-interval fire regimes. It is possible that salvage logging will have effects on local weather, particularly increased surface winds and temperatures in clearcut openings. This will certainly affect the microclimate, if not the macroclimate (depending on the scale and spatial arrangement of cutover units). The effects of commercial and salvage logging will likely cause an unnatural increase fire intensity and severity, and more homogenized fire effects from the simplified structure left in the wake of clearcutting. The DEIS did not explain that the forests within the Idaho Panhandle and Colville National Forests are still within their historic range of variability for stand-replacing fire, despite the influence of past fire suppression. The DEIS failed to demonstrate the necessity to intensively manipulate forest structure through commercial and salvage logging in order to "protect" the forest from stand-replacing wildfire. The FEIS needs to disclose what the cumulative effects of continued fire suppression and exclusion will be on future wildfire behavior and effects, and the array of ecosystem and natural resource values that are dependent upon or adapted to wildfires of variable intensities.

Response: We believe that forests in north Idaho and eastern Washington at a basin scale are outside the historic disturbance patterns. Fire cycles are interpreted differently depending upon the spatial scale being considered. The 60-year return interval noted in the Coeur d'Alene River study is a mean stand return interval. However, the landscape is composed of thousands of stands. If the mean stand return interval is 60 years, then after 60 years, half of the stands might be expected to have already experienced one fire,

some smaller portion to have experienced two or more fires, and only half of the stands to have not yet had a fire.

Sixty years of effective fire suppression is long enough to profoundly alter pattern and ecosystem function at the landscape scale, even if not every single stand is outside of the historic range of variability. Fire suppression that has occurred across all stands for even less than one stand-scale fire cycle will still profoundly alter landscape-scale structure. When considering fire regimes, it is important to differentiate between stand level effects, and effects across various landscape scales. The implications are often quite different. See Zack & Morgan's Coeur d'Alene Fire History study (Zack & Morgan 1994), pages 24-29 for a discussion of the importance of scale and variability. Note that in the Coeur d'Alene Fire History study the mean stand-scale return interval for stand-replacing fires was 191 years, but the river basin-scale average interval between major fire episodes was only 19 years.

Past management activities are discussed in the FEIS. The reduction of seral species and the increase of tolerant species across the landscape has reduced the probability that future fires will be low to mixed severity. This vegetation change also will increase the severity of future stand-replacing fires. As a total percentage, the amount of forested land within the IPNF in the stand initiation phase is close to historic levels. However, this structural stage is more fragmented and does not include as many large blocks as historically. The No Action Alternative demonstrates the effects of successional trends affecting fire intensity and severity. Chapter III, Characterization and Existing Conditions, has been rewritten to more clearly address historic and current fire regimes.

FUELBREAKS

Individual Comments

FAILURE TO DISCLOSE INDIRECT AND CUMULATIVE EFFECTS OF FIRE SUPPRESSION WITHIN FUELBREAKS

One of the fuels treatments highlighted in Alternative F, but is also a part of other action alternatives, is the construction of fuelbreaks. The purpose of fuelbreak construction is to "isolate the risk to private property" and "facilitate fire suppression efforts." [DEIS; II-13] Without a new fire management plan that discloses the environmental and economic tradeoffs of fuelbreaks, these purposes violate the Federal Fire Management Policy. The agency cannot claim that firefighting actions have no connection or relationship to the fuelbreaks planned in the Beetle Project, for fire suppression constitutes a connected action with fuelbreak construction. Consequently, the FEIS needs to analyze and disclose the foreseeable direct, indirect, and cumulative impacts of firefighting within and adjacent to fuelbreaks. By failing to analyze, disclose, and consider public input on the full range of associated actions and impacts related to the use of fuelbreaks in order to facilitate fire suppression actions, the agency cannot make a credible assessment whether or not the effects of firefighting in fuelbreaks will be lesser or greater than the effects of firefighting without fuelbreak, or the effects of wildfire without firefighting. The indirect and cumulative effects of fire retardant chemicals dispersed in fuelbreaks must be disclosed in the FEIS.

The FEIS needs to disclose the site-specific impacts of additional clearcutting within fuelbreaks to facilitate fire suppression actions.

Response (to the previous two comments): Slash treatments for Alternatives F and D would create fuelbreaks, providing a buffer between private and National Forest lands. Alternative F contains shaded ridgeline fuel breaks on the Coeur d'Alene River District. These fuel breaks would be linear modifications of fuels along ridgetops and would appear as irregular shelterwoods (see glossary). The objectives of linear fuelbreaks are many. One of the most important is to provide areas where firefighters can successfully contain wildfires.

Effects of these fuelbreaks, including the effects of ridgetop fuelbreaks, were included in each resource analysis. Because of the location of the ridgetop fuelbreaks, effects on watershed and aquatic resources would be minimal. The ridgetop fuel breaks provide undesirable access for ATVs. Effects to lynx are

negative from ridgetop fuelbreaks because of their linear nature. Any soil disturbance activity provides a seedbed for noxious weeds and is addressed in Chapter III. INFS requirements provide guidelines on use of retardant chemicals to minimize effects.

The usefulness of permanent fuel breaks in these timber types and these fire regimes is subject to debate. This, as well as economics, is one of the reasons that ridgetop fuelbreaks are not included in Alternative D. As discussed in Chapter III, Fire/Fuels section under Characterization and Existing Conditions, a variable fire regime was common. During stand replacement events including both wind-driven fires or fires driven by regional climate patterns, such fuelbreaks would not be effective because of the spotting distance of fires that would burn during these conditions (Sundance fire, USDA 1968).

Lower severity fires controlled by fuel, local drainage winds, or topography normally burn to the top of the hill and then stop or slow in spread and intensity. A maintained fuel break is not normally necessary to stop the fire.

The handpile fuelbreaks in the Coeur d'Alene District are all located in proposed harvest units adjacent to private lands and occur as part of the slash treatment prescription. The purpose of these activities is to reduce all fuel sizes to reduce the spread rates and intensities should a fire occur. This is in response to cooperation between the Idaho Department of Lands, who have fire control responsibilities in this area, and the Idaho Panhandle National Forests as the responsible agency for land management activities on the National Forest. Most fires that occur would burn away from private lands in these areas. A backing fire, or the unusual event of a downslope wind-driven fire, however, could burn from National Forest Lands onto private lands. As discussed in Chapter III, reducing crown density lowers the risk of crown fires and reducing surface fuels reduces surface flame lengths, torching and rates of spread. These efforts would allow federal, state and local agencies and fire departments to protect areas that are their responsibility.

FAILURE TO ANALYZE AND DISCLOSE EFFECTS OF FUELBREAK MAINTENANCE (OR LACK OF MAINTENANCE) The DEIS failed to disclose how--if at all--the agency intends to fund long-term monitoring and maintenance of fuelbreaks. Without monitoring and maintenance, the investment in fuelbreak construction is often wasted when grasses, saplings, and brush colonize cutover sites and negate the effects of initial fuels reduction. Furthermore, the foreseeable economic costs and difficulties of securing funding for long-term fuelbreak maintenance was never disclosed in the DEIS. The DEIS failed to disclose the environmental effects or economic costs associated with each of these maintenance methods. The DEIS failed to disclose the environmental effects of these different maintenance techniques, and failed to disclose a fuelbreak maintenance plan at all. The FEIS must disclose this vitally important information.

Response: The Coeur d'Alene River Ranger District has developed a system of fuelbreaks in the Coeur d'Alene and Hayden Lake areas. The fuelbreaks proposed in Alternative F would be an extension of these fuelbreaks. Future funding to maintain fuelbreaks and to provide prescribed fire treatment cannot be assured, but indications are that funding to treat fuels would increase in the near future or at least would be held at current levels. With federal land management, uncertainty of future direction and funds is true for any resource decision. One can only make a decision based of the best information available at the present.

FIREFIGHTER SAFETY

Individual Comments

The DFB DEIS misrepresents the short-term problem of snags and firefighter safety.

Response: Providing for firefighter and public safety as one of the first priorities of the Federal Wildland Fire Management Policy. The deaths of 34 firefighters in 1994 focused the fire community's attention on wildland fire, and resulted in numerous initiatives at the federal and state levels to improve firefighter safety. One such initiative was a study conducted on wildland fire fatalities in the United States between 1990 to 1998 (USDA Forest Service 1999b). The study found that falling "snags " (dead standing trees

without leaves or needles in the crowns) killed four wildland firefighters. The report concluded, "Although this hazard has resulted in relatively few deaths, and none have occurred in the past four years, the risk of death or injuries from falling snags remains a serious concern. Snags typically have much lower fuel moistures than live green trees and burn more readily. In the process, they often throw spot fires far in advance of the main fire, and often burn through more quickly than green trees, falling with little or no warning. The risk of injuries from falling snags increases during the night when visibility is greatly reduced. While the cooler night time period is generally a more effective time to gain control on wildfires, the increased risk from unseen falling snags may limit the widespread use of crews at night in areas of dead and dying timber." Firefighters need to be aware of the dangerous and often life-threatening conditions that falling trees and snags can create during all aspects of firefighting in forested areas. In fact, falling trees and snags are one of the leading causes of death and injury for wildland firefighters (Valdez, M. and Style J.R. 1996).

Where larger fires involve numerous snags per acre, a serious safety hazard exists. In such cases because of increased safety awareness, it has become common practice for the firefighters to back away from a fire's edge a sufficient distance. This allows time to create a safe work environment to construct, burn out, and hold fire lines. This form of fire fighting is often referred to as "indirect attack". Indirect attack often results in more acreage burned and, especially in timber types, an increased risk of escaped fire.

National Forest snag management policy (USDA, 1985, Idaho Associated Logging Contractors et. al 1995, USDA 1995, CFR 1910.226) recognizes the value of snags as well as the hazards associated with snags and operational activities.

FAILURE TO SUBSTANTIATE CLAIMS OF INCREASED RISKS TO FIREFIGHTER SAFETY FROM BEETLE-KILLED STANDS

The agency's complaint that beetle-killed areas pose significant risks for firefighter safety betrays a lack of consideration for the Federal Wildland Fire Management Policy. Risks to firefighter safety come not only from natural hazards, but also from "emergency" crisis decision-making when agency managers neglect to do prior fire management planning. The DEIS fails to disclose the benefits of defoliated stands or "snag patches" in creating natural fuel breaks to aid in safe, effective fire suppression efforts.

Response: Any action or lack of action that breaks crown fuel continuity, such as a beetle infestation, logging, or construction of a fuelbreak, can affect how a fire will burn. Such treatments can cause a fire to drop to the surface so it can be safely fought by fire fighters. There is a trade-off however. When crown conditions change, the surface fuel model may change to a fuel model that results in greater surface fire intensities. Under extreme conditions, surface fires in grass and brush models can spread as rapidly as timber crown fires. Though the flame lengths of fast-moving surface fires may not be as great as observed during crown fires, they can be of sufficient lengths to preclude direct attack. In cases where the insect activity does not reduce crown fuel continuity enough but adds surface fuels, increased risk of crown fire can occur. The results of the FFE-FVS modeling done for this project display these trade-offs.

The previous response concerning snags also applies to this comment.

AIR QUALITY

There was one general comment regarding air quality. The comment stated that burning logging slash pollutes the airshed. This comment is answered in the Air Quality section of Chapter III in the discussion of the Regulatory Framework. All the proposed burning would be in compliance with the Clean Air Act as stated in the FEIS.

Individual Comments

Page II-28, Implementation Monitoring - Air Quality Smoke management guidelines established by the Idaho Smoke Management MOA (1990) apply to all forms of prescribed fire activities, not just to burning timber harvest residues as

it is inferred in this section. For example, all of the action alternatives include underburning as one of the fuel treatment methods, ranging from 400 to 10,000 acres depending on the alternative. This type of burning should be coordinated with the North Idaho Airshed Group smoke management program.

Response: The Regulatory Framework is discussed in the Air Quality section of Chapter III of the FEIS. The sentence on Page II-28 regarding Implementation Monitoring has been amended to include regeneration site preparation and wildlife improvement. All burning has, and continues to be, coordinated with the North Idaho Airshed Group.

Page III-187 Methodology - This sentence should include, " ... annual reports from the Montana/Idaho Smoke Management Committee which includes air quality monitoring data compiled by the Idaho DEQ." It also may be beneficial to show where the Idaho DEQ monitoring sites are located in north Idaho on one or more of the project maps. A table with the locations and GPS coordinates of the sites is available from the Coeur d'Alene Regional Office of DEQ.

Response: The sentence has been modified including the air quality monitoring data the Idaho DEQ provides to the North Idaho Smoke Management Committee. In addition a map has been included in the document identifying non-attainment areas, airsheds, and the locations of DEQ monitoring sites.

Page III-405 Regulatory Framework - The last paragraph in this section summarizes some of the important federal regulations such as the Clean Air Act Amendments and the National Ambient Air Quality Standards (NAAQS). This section did not mention the new NAAQS for PM2..5 that was recently adopted in July 1997 by the US EPA. This recent action further refined the ambient standards for particulate matter (PM). This new PM2.5 NAAQS will present greater challenges for air quality and smoke management because research has shown that combustion sources contribute significantly to this size classification of particulates. Additional information on the new PM2.5NAAQS is available on numerous EPA web sites. The last two sentences in this same paragraph identify the non-attainment areas in the region. Fernan in not a non-attainment area for PM10. Kootenai County was a proposed PM10 non-attainment area which means it was listed for EPA consideration but has since been removed from that list due to several actions at the state and local level. Pinehurst and Sandpoint are the only two non-attainment areas in North Idaho. And finally, the last sentence in this paragraph is such a generalization that it adds no value. Infrequent smoke impacts due occur periodically in all of these areas from prescribed forest burning activities at the local and regional level.

Response: See Chapter III - Air Quality regarding the discussions in Regulatory Framework, Methodology, and finally Direct and Indirect Effects following the fuels treatment table. "Results of the FOFEM emissions modeling determined annual PM 2.5 and PM 10 standards would not be exceeded for each alternative. These results are based on completing approximately 20% of burning annually by alternative. However, in Alternative A no fuels treatments would be completed. As a consequence, these standards may be exceeded in the event of wildfire. Treating fuels reduce the intensity and severity of a fire should one occur."

Also, the discussion regarding non-attainment areas has been corrected and is consistent with information from the Priest Lake and Newport reports. The last sentence, "...infrequent smoke impacts occur periodically..." has been deleted.

Page III-189 Consistency with the Forest Plan - In the second paragraph of this section, the term "regulated" implies that there are specific regulations or rules with regard to smoke management in Idaho. At the present time, there are no specific rule or regulations for smoke management other than general rules regarding emergency episodes and open burning. Instead, the current program, as described earlier in the document, utilizes a voluntary approach which was established through the 1990 Memorandum of Agreement to form the North Idaho Airshed Group.

Response: Thank you for your clarification. The statement regarding Consistency with the Forest Plan has been modified with the word "regulated" being deleted.

Page III-187 Effect Common to All Alternatives - According to the fuels treatment summary, Table II-20, burning of landing piles for treatments B, C, and E show more acres than the underburn acres, so it may be inaccurate to

characterize this type of burning as "minor". Also, because many of the treatment acres, especially those around Hayden Lake, are relatively close to urban areas, the potential for smoke impact is greater such that it also might be inaccurate to claim that "smoke from this burning will minimally affect air quality." Current USFS policy only addresses dust abatement and road maintenance on the roads within the forest boundaries. However, when the logging trucks leave the forest boundaries and begin travelling on the county roads, significant air quality impacts can occur from fugitive dust emissions from untreated, unpaved roads. These impacts have a greater impact on human health because of the increased rural population in the project area and the potential for a high volume of truck traffic associated with all phases of this project. Historically, this type of impact generates the most frequent and wide spread type of air quality complaint at DEQ. In order to mitigate this impact outside of the forest boundaries, this project should include the development of a coordinated road maintenance agreement with the county or local highway districts and all of the logging contractors associated with the project. Our office can assist with this effort by providing contact names and other information. Controlling fugitive dust on unpaved roads provides additional benefits such as reducing water quality impacts to nearby streams and it also reduces overall road maintenance costs.

Response: Refer to the Fuel Treatment Methods and Fuels Treatment Table in Chapter III - Air Quality. The schedule to dispose of all landing piles would span a period of approximately five years. This would equate to disposing of approximately 20% of the total piles yearly. Pile burning would be conducted in the late fall. Compared to underburning, pile burning reduces emissions from 25 to 50%, and increases combustion efficiency as much as 95% (D. Ward, 1992).

We appreciate your assistance regarding a coordinated road maintenance agreement outside the Forest boundaries. After discussion with DEQ staff on April 27, 1999, it was agreed that information regarding harvest activity, and particularly hauling routes and density, would be made available to county and local highway districts.

Page II-186 Air Quality Regulatory Framework - This section needs to identify the nearest Class I areas that might be impacted by the dispersion of smoke from the project, similar to the discussion in the comparable section for the Priest Lake Ranger District on page III-404. The Priest Lake Ranger District section includes some general information on the Clean Air Act and National Ambient Air Quality Standards which should be included here as well. See comment below on the Priest Lake section.

Response: The Regulatory Framework is discussed in Chapter III. A discussion on the nearest Class 1 Airshed, Cabinet Wilderness has been added. Also, similar discussion regarding the Clean Air Act and National Ambient Quality Standards have been added to maintain consistency.

Page III-406 Effects Common to all Action Alternatives - The third and fourth paragraphs identify that two different smoke management programs have jurisdiction within the Priest Lake Ranger District. Increased coordination and communication between the two smoke management programs may further reduce air quality impacts from prescribed burning within the district.

Response: We certainly agree with your comment.

Page III-407 - Table III-167 Summary of fuel treatment acres, Priest Lake Ranger District. This table is not consistent with Table II-26 for organization of fuel treatments.

Response: Though the tables may not be consistent in format, the information of fuel treatment acreage is identical. We saw no need to modify either table as the presentation of the information is very understandable in both instances.

Page III-189 Cumulative Effects - The statement is made in this paragraph that most of the burning would occur in the early spring "when demand for airspace has been historically low." This statement conflicts with all the earlier discussion about the benefits of following the North Idaho/Montana Airshed Group smoke management program. This program is presently only active in the fall from September to November. If the USFS plans to conduct most of their burning in the spring, there would be no coordinated smoke management program in operation. The North Idaho/Montana

Airshed Group is currently planning to extend this program to include the spring season but there are still a number of issues to resolve before this is finalized. Also, with the overall forest-wide increase in prescribed fire for ecosystem management, other forests will be increasing burning during the spring as well, such that smoke from upwind sources may create greater demand for airspace throughout the burning seasons.

Response: Thank you for this clarification. We also recognize the increased prescribed burning for ecosystem management. We will continue to coordinate our burning program with the North Idaho Airshed Group including during the spring season.

Forest Planning

Similar Comments There were two comments about Forest Planning.

One group submitted comments about the IPNF Forest Plan and Forest Plan Monitoring. These comments were so lengthy we have summarized them here. The group submitted a partial list of issues proceeding from their appeal of the 1987 IPNF Forest Plan that they say are still unresolved and have implications for projects such as this one. Their comments consisted of approximately four pages of ecologic, economic and planning items they said the Forest Plan failed to do. The group also said they expect that the Colville National Forest has also not adequately dealt with problems the public and government agencies pointed out about its Forest Plan in comments and appeals.

Another person commented that the beetle outbreak demonstrates the need to continue implementation of the original forest plan objectives "to move the forest in the direction of more balanced age class distributions and tree spacings to achieve desired future conditions."

Response: Reviewing each item listed in the four pages of comments and assessing what the IPNF Forest Plan has or has not done is beyond the scope of this project. The FEIS addresses the resource concerns that relate to this project. For each concern identified, the commentors should consult the appropriate part of the FEIS to see how we are addressing that issue for this project.

With respect to this groups appeal of the 1987 IPNF Forest Plan, the Chief of the Forest Service affirmed the Regional Forester's decision to approve the Plan. Of the 20 concerns identified by the appellants, the Chief provided additional direction to the Regional Forester on only one. In the case of timber sale scheduling on the IPNF's three proclaimed forests, the Chief stated that there were some technical problems with the analysis and directed the Regional Forester to provide additional information (which was done) and to correct the technical problems during revision of the Forest Plan.

The Colville Forest Plan was litigated in 1992 by this group and others. The litigation was settled in 1995 by agreement in view of the amendments to the Forest Plan from the Regional Forester's screens and the ongoing Eastside Ecosystem Management Project, now called Interior Columbia Basin Ecosystem Management project. Since no specifics are identified by the commentors, none can be addressed.

This project doesn't focus on attaining a balanced age class distribution and tree spacing as mentioned in one of the comments. Instead the intent is to restore long-lived seral species (i.e. ponderosa pine, western larch and blister rust-resistant western white pine) which have declined in the project areas.

See the various resource sections in Chapter III for discussions on Forest Plan Consistency.

FOREST PLAN MONITORING

There was one comment about forest plan monitoring. Due to the length of the comment, it has been summarized here. The group commenting listed a number of IPNF Forest Plan monitoring items they say the Forest has not conducted adequately. They stated that Forest Plan monitoring reports reveal that the forest has not arrived at the realization of the seriousness of impacts that implementation of the Plan has caused.

They discussed the following monitoring items:
(B-1) Harvested lands restocked within 5 years
(B-4) Insect and disease hazard
(D-1) Off-road vehicles--effects on resources, uses, public safety
(F-1) Population trends of indicator species
(F-2) Grizzly bear recovery objective
(F-3) Caribou recovery objective
(G-1) Greater than 80% of potential emergence success
(G-3) Validate fish habitat trends identified in the Forest Plan
(G-4) Fish population trends - cutthroat trout and bull trout
(H-1) Threatened & endangered species

The group had questions about the data sources for many monitoring items and wanted to know how data was used in the monitoring. They identified some items which they said were not being monitored or reported adequately. They also indicated that, in some cases, follow-up action from one year's monitoring was not discussed in the following year's monitoring report.

The group stated that there has been a serious decline in the quality and quantity of information in monitoring reports since 1994, but even the reports prior to 1994 failed to comply with the Forest Plan. They said the reports appear to be avoiding real issues and felt that the IPNF was avoiding its legal responsibilities to carry out monitoring requirements as stated in NFMA and the Forest Plan. The group said that without some clear idea on how implementing the Forest Plan has affected the various resources on the Forest, it makes no sense to be proposing activities such as the Douglas-fir Beetle Project.

The group requested that the IPNF take a hard look at the water quality monitoring associated with Forest Plan Appendix JJ but provided no specifics. They also suggested the Colville National Forest review its Forest Plan Monitoring Plan, and evaluate the results of that monitoring as they had done with the IPNF.

Response: Issues related to the adequacy of Forest Plan Monitoring or the broader effects of the Forests' management actions since implementation of the Forest Plan are outside the scope of the analysis conducted for this proposed action. However, each resource issue contains an evaluation of the existing condition of those resource values as well as an evaluation of the potential effects of the proposed action on those values. Resources to be monitored in relationship to this proposed action and the techniques for doing so are listed in the FEIS, Chapter II.

A Forest Plan Monitoring Report has been prepared each year since the Plan was adopted. Some monitoring items are reported each year while others are reported for longer time periods. A number of items which have five year reporting periods were last reported in 1993. These will be reported again in the 1998 report which is currently being prepared.

Monitoring results are gathered at the forest level and evaluated at a time when the results are likely to become meaningful. While some effects of management occur immediately and can be immediately evaluated, others must be considered over longer periods of time and are more appropriate to consider during forest plan revision.

Forest plan monitoring is not designed to validate our effects procedures. It is used principally to monitor changes that affect outcomes and outputs. Predicting the effects from our land management activities depends on research information. A large number of research findings were used for this project (see the List of References in the FEIS).

Other important sources of information were used for the assessment of ecosystem conditions and trends. The most important of these were the assessment of the Interior Columbia River Basin, and the IPNF landscape (geographic area) assessments of the five major subbasins on the forest: the St. Joe, Coeur d'Alene, Pend Oreille, Kootenai and Priest areas. The Coeur d'Alene and Priest River assessments were used extensively for the Douglas-fir Beetle EIS.

In response to the questions about data sources, types of data, and monitoring methods, listed below is a short summary of this information for each monitoring item identified by the commentor.

Monitoring Item B-1 Harvested lands restocked within 5 years.

The Timber Stand Data Base is used to give the percentage of stands in each regeneration status category. There are three possible regeneration status categories in the data base: failed, progressing, and certified. Failed means that the stand is not expected to meet stocking standards for certification within 5 years without major future treatment. Progressing means that the stand is on a trajectory that meets stocking standards, but that the crop trees are not yet old enough, large enough, or growing rapidly enough that the stand can be removed from regeneration status. Progressing stands are not expected to need any further major treatment to become certified within 5 years. Certified stands fully meet the stocking standards, and the trees are large enough, old enough, and growing rapidly enough that the stand can be considered fully established and removed from regeneration status. To be considered either progressing or certified, a stand must be adequately stocked according to the stocking objectives for that site.

Monitoring Item B-4: Insect and disease hazard

Aerial surveys, ground surveys, timber stand inventories, and actual insect trapping are all used to determine the extent of current pest problems and to predict future insect and disease impacts. There is also a large number of activities which, while they principally involve collecting information on vegetation, also provide observations on insect and disease occurrence.

Monitoring Item D-1: Off-Road vehicle effects

Visual observations are used on trails and other areas where off road vehicles are used to determine the effects of this use and to determine if Forest Plan travel plan direction is being followed.

Monitoring Item F-1: Population trends for indicator species

Estimating population numbers and trends for indicator species in the Idaho panhandle area involves cooperative surveys and information sharing between many agencies, such as the Idaho Department of Fish and Game, Washington Department of Fish and Game, the U.S. Fish and Wildlife Service, the Bureau of Land Management, as well as the IPNF and surrounding national forests. Information from agency and university researchers is also used. Examples of the sources of information include ground surveys, aerial surveys, collared animals, mortality reports, transplant activities, harvest count, and law enforcement activities.

Monitoring Item F-2: Grizzly bear recovery objectives

Much of the direction, coordination and information sharing for recovery of this species is from the Interagency Grizzly Bear Committee. Information on grizzly bear populations is collected from state fish and game departments and from the U.S. Fish and Wildlife Service. This information includes population

estimates and mortality data. Records of habitat effectiveness as calculated through biological evaluations or assessments is maintained. The square miles of secure habitat in each bear unit is also tracked annually.

Monitoring Item F-3: Caribou recovery objectives

Recovery efforts for caribou involve partnerships and cooperation between the Idaho Panhandle National Forests and the U.S. Fish and Wildlife Service, British Columbia Ministry of Environment, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife. The Forest Service has been a partner in the recovery process since listing. We currently have representation on the recovery team, steering committee and technical committee. We are working jointly on projects such as augmentation, predation studies, monitoring of caribou, wildfire assessment, habitat mapping, etc. Many of these projects are ongoing and a few have just been initiated.

Information on caribou populations is collected from state fish and game departments and from the U.S. Fish and Wildlife Service. This information includes population estimates and mortality data. Records of habitat effectiveness as calculated through biological evaluations or assessments is maintained.

Monitoring Item G-1: Greater than 80% of potential emergence success

This item was monitored during 1988 and 1989. The findings were that it was not a good monitoring tool to use to report on the health of streams. The decision was made to combine monitoring items G-1 and G-3. G-3 was expanded to include a portion of the existing core sampling program from G-1 and additional parameters were added to use to determine the health of streams.

Monitoring Item G-3: Validate fish habitat trends

We conduct stream surveys at both the project and forest level. These surveys evaluate pool conditions, habitat complexity, spawning substrates, etc. Some of these surveys are only conducted once, while others have been surveyed multiple years at the same location. In addition we collect information on substrate size which can be used as a surrogate for fish habitat quality. Over 400 streams have been surveyed on the IPNF since 1988.

Monitoring Item G-4: Fish population trends

In conjunction with the Idaho Fish and Game Department we conduct annual surveys of a subset of streams on the IPNF. The primary focus of these surveys has been westslope cutthroat and bull trout. Some of these surveys are only conducted once, while others have been surveyed multiple years at the same location. In addition at least three masters students from the University of Idaho, and the Rocky Mountain Research Station have collected information on fish populations on the IPNF. Surveys for bull trout have focused on the Priest, Pend Oreille and St. Joe basins. Extensive surveys for cutthroat trout have been conducted in the Coeur d'Alene basin.

Monitoring Item H-1: Threatened, endangered, and sensitive plant species

Field surveys are done in the most critical habitat areas. We access Rare Plant Occurrence Data created and maintained by the Idaho Conservation Data Center (ICDC - formerly Idaho Heritage), Idaho Department of Fish and Game in Boise, Idaho. We use their GIS layer with point locations for all Sensitive and Rare Plant species, with supporting information on occurrence numbers, habitat, condition, threats etc. Information for all sitings found during surveys is sent to the ICDC and they input and maintain the Database. When populations are periodically revisited, a new siting form is sent to the ICDC and this information is input into the data base. Comparisons can be made of siting data between the initial observations and the most recent sitings. We have also established formal, long-term monitoring plots for a number of species.

The 1997 Monitoring and Evaluation report for the Colville National Forest was recently mailed to the public. Monitoring planned for this project is identified in the EIS.

Heritage Resources

Individual Comments
The DEIS does not indicate if surveys for Heritage Resources would be completed so that full disclosure will appear in the FEIS.

Response: A high proportion of the various analysis areas previously have been surveyed for heritage resources. Additional heritage resource surveys would be completed prior to implementation. In the FEIS, a section has been added to Chapter III which discusses heritage resources and analyzes the potential effects of the proposed activities and mitigation.

National Environmental Policy Act (NEPA) & Forest Service Policies

PURPOSE AND NEED

Individual Comments
Restoration Activities: The activities proposed address restoration/improvements of forest functions (e.g. watershed, stream quality, wildlife security (?) - habitat not much mentioned? This are commendable goals, but have a sort of hollow sound, if one considers the fact that all the well intended and costly efforts are applied to forest ecosystems that have a severely compromised and declining resilience and have dubious chances to function sustainable. Activities aimed at restoring "balance" and "historic variability" through "regeneration cuts" (a novum and most likely politically correct term for an old fashioned clear cut, I suppose) and planting of conifer trees sounds more as an attempt of ecological restoration.

Response: You are correct that regeneration harvest (which in this proposal is not an old-fashioned clearcut) is an attempt to restore long-lived seral species to our forests which, admittedly, have had their resilience to disturbance compromised by the removal of serals and the interruption of historic disturbance regimes. Species composition and disturbance are probably the most important drivers of structure and function in the long term. In most areas, the seed source is no longer present to restore long-lived serals to the stands, therefore planting is the most effective means of beginning to restore historic species composition. This will not be an easy or quick restoration, and given human populations, may never be able to completely restore historic structure, composition, function or the resulting resilience of these forests. But to do nothing at all would certainly not achieve those goals.

Why do the project, if the best results are zero improvement?

Response: The analysis was done at two different scales. The small scale at the watershed level usually shows larger effects, either positive or negative. A much larger area is considered for cumulative effects, and this scale tends to minimize those same effects. Further work and refinement of the alternatives indicate the trends to be more positive than were reflected in the DEIS.

The purpose of and need for the proposed action should include components of the follow-on discussion. (p 1-2) For example, the purpose should include economic and social values and the need for the proposed action should include road management.

The primary focus and priority of the Selected Plan must be the prompt restoration of water quality and reforestation of logged areas.

Response (to the previous two comments): The paragraphs that follow the purpose statement provide the supporting rationale for the project. These paragraphs describe current conditions and desired conditions of vegetation, wildlife and aquatic habitats, forest fuels, and social values (which includes economics). Restoration of water quality and reforestation are key components of the desired conditions. Although road management is not a part of the purpose and need, all roads in each treatment area (in each alternative) were evaluated for long-term access needs, risks to watersheds, and wildlife security needs. See Appendix D for a list of roads, their conditions and attributes.

At the landscape scale of the entire beetle outbreak it cannot be controlled, however, in particular areas of the forest, where trees are removed when infested with beetles, the beetle population is reduced locally. For all action alternatives except G, we would accomplish as much ecosystem restoration as possible using the economic value of the dead trees.

SCOPE OF PROJECT

There were 57 comments about the scope of the project which relates to timing, scale and purpose of actions.

Similar Comments There were 54 people that said the Forest Service should streamline the planning process and get timber sales sold during spring of 1999 to help slow the beetle infestation, reduce fire danger and capture the wood value of dead trees before they deteriorate. Four people commented that we are not treating enough of the beetle infestations, leaving areas that will cause increased beetle activity. One person stated that, given the scope and magnitude of the project, they "hope the implementation of the project can be carried out as well and as effectively as the planning process has been."

Response: We understand your concern about the effects challenges and appeals could have in delaying or preventing a rapid response to the beetle outbreak. We recognize that slower action or no action on National Forest lands could result in beetle activity spreading to private land. The NEPA process we must follow by law as a federal agency means our response time is much slower than that which can occur on private lands.

Requesting and being given an "Exemption from Stay of Implementation" is one of the actions we have taken to be able to respond a little faster to beetle problems on the lands in the wildland-urban interface.

Individual Comments
American Wildlands is extremely concerned about the scope of this project and the scientific reasoning behind logging and road building for forest health reasons. This project is based on sawtimber values, not ecological values... The scope of this project is too large. The rush for commercial timber outputs does not allow the USFS to make responsible decisions based on watershed conditions and impacts. More site specific information is needed. The broad outline of logging and road building activities identified in these alternatives for such a large project area fail to meet site-specific needs.

Response: While the scale of this project is larger than normal, we believe the scope is well defined within the Purpose and Need described in Chapter II and the proposed action which focuses restoration activities in areas where the beetles are active. Similarly, and despite the scale, the design and analysis of the alternatives has been based on very site-specific information. Based on yours and other similar comments on the DEIS, we have moved more of this detailed information into the FEIS (for example, see Appendix D for listings of individual roads and units and their conditions and attributes).

As you have laid out alternatives and considered issues of concern, we believe the most aggressive approach to address this serious outbreak is most wise. There is great opportunity to produce revenues quickly that can be used to implement

your restoration theme. Because of the age of the Douglas-fir stands in the area, the bark beetle problem will not go away. This outbreak points out the need of timely salvage when wind and ice damage occurs.

Response: We agree that an aggressive approach to this outbreak is needed. However, as a federal agency we must follow a well defined process to comply with our NEPA responsibilities. While this process takes longer than some people like, complying with NEPA and the many other laws that regulate Forest Service activities is a responsibility we take seriously.

If the approach taken towards restoration was really a watershed one, towards which Chief Dombeck claims agency policy has shifted, then highest priority watersheds would be the starting point. Instead, it is the trees to be logged that are the immediate focus of attention. This is also reflected in the varying amounts of road removal (restoration, obliteration, etc.) in the different alternatives. If a road has been identified for removal because of real or potential resource damage problems, then it is irrelevant whether or not a timber sale is in the area for determining if the road will be removed, it should be removed.

Response: We are proposing activities in these areas because of the current beetle outbreak, which allows us to evaluate opportunities for restoration of both aquatic and vegetation resources. Changes made between the draft and final EISs included an increase in watershed restoration work being accomplished in all alternatives. Accomplishing these activities may be dependent on the timber sale being sold, but is <u>not</u> tied to the sales being "bid up" or generating extra "profits." Please refer to Appendix D for further information.

If high moderate hazard Douglas-fir stands are considered, approximately 250,000 acres of the Idaho Panhandle National Forests and approximately 17,000 acres of the Colville National Forest have the potential to be infested by the current Douglas-fir beetle outbreak. (p I-1) The proposed timber harvest for both National Forests is considerably less than the acreage of Douglas-fir stands at risk; thus, please clarify whether the proposed action is the first and only action or is likely one of a series of actions. If one of a series of potential actions, identify the concerns and/or issues that would prompt subsequent proposals.

We are concerned that the bark beetle epidemic could last longer than expected and the agency may not be able to implement salvage cutting fast enough to prevent further losses. It is difficult to know the exact extent of beetle infested trees, or to know the extent of the next flight and their impact to the surrounding forest. The proposed actions do not treat the entire area known to have been infested in 1998. Therefore, we believe the Forest service should expand the proposal to address the mortality that has occurred and that which will almost certainly occur over the next two years. However, we also recognize that expanding the current project would almost certainly doom it to collapse under the weight of administrative review and political debate. Therefore, we urge the agency to begin developing plans immediately that will address the areas already impacted, and those areas impacted this summer that are not included in this proposal.

Response (to the previous two comments): As we describe in the EIS, a "typical" Douglas-fir beetle epidemic can last from two to four years. Another ice storm or blowdown type event could extend that, or certain weather conditions could shorten it. The alternatives studied here used the most likely scenario, developed by our entomologists and peer reviewed by experts from throughout the northwest.

We realized early on that, given the required time frames for analysis and public involvement that we operate under, large scale "suppression" of the epidemic wasn't possible. Therefore the focus has been on addressing the conditions that will be left on the landscape when the beetle epidemic is over (reduce hazardous fuels, remove or fix roads which are impacting streams, and plant or maintain tree species to support a more sustainable forest ecosystem). The alternatives focus on the infested areas where these objectives could best and most efficiently be met without delay.

Depending on the alternative, an attempt was made to account for the most predictable portion of the upcoming infestation spread. In currently infested stands, multiple beetle-killed pockets were grouped into common treatment units as the most likely scenario is for the next flight to kill the nearest suitable

trees. Alternative D takes a more adaptive approach to address the uncertainty inherent in predicting exactly how far the beetle infestation will spread. It is based on the same assumptions used for the other alternatives, but proposes to monitor the spread in specific additional stands having characteristics which make them highly susceptible to beetle attack. Harvesting would only occur in these forest stands if the infestation spreads to, or increases in them. In either case, you are correct that the infestation could spread to other areas not analyzed in this document. Further work in these areas would require separate analysis and documentation.

We are curious if you plan to log areas on the lakeshore road between Outlet and Hill's?

Response: There are no proposed activities in the areas on the lakeshore between Outlet Bay and Hill's Resort under this project. However, there is another project called "Lakeface Lamb" that has just released an environmental assessment for public review. No decision has been issued yet on that project. If you have questions relating to the Lakeface Lamb project, please contact the Priest Lake Ranger District office.

EXEMPTION AND PUBLIC INVOLVEMENT

Similar Comments There were 24 similar comments requesting that the exemption not be granted. Many of these people felt that the exemption circumvented the public involvement process. There were two comments in support of the exemption and one additional comment that said they applauded our efforts to involve the public in the decisionmaking process.

Response: The exemption was requested for only 4,000 acres in the Coeur d'Alene River Ranger District near private and state lands. It allows us to begin planning timber sales in these areas. Although the exemption allows for timber sale contracts to be awarded 30 days after the FEIS is released, it does not allow us to circumvent the public involvement process. The exemption does not change the public appeals process and timeline, or prevent us from considering public comments. All public comments received during the comment period for the DEIS were reviewed and considered prior to receiving the exemption. The work that is being accomplished with the exemption is not irreversible. If any contracts are awarded and the decision is reversed through an appeal, those contracts could be cancelled.

Individual Comments
Among other enclosures with these comments are some letters written to the Chief of the Forest Service which are in disagreement that the appeals process should be bypassed because of the "emergency" situation represented by the Forest Service. We feel it is unreasonable, especially in light of the disclosures in the recent Inspector General's Evaluation Report on Forest Service Timber Sale Environmental Analysis Requirements (January 1999), to ask for insulated logging implementation procedures; the normal public process should ensue. So that every Forest Service employee who involved with this NEPA process may read the Inspector General's report, we've enclosed a copy with these comments.

Response: Thank you for the copy of the letter you sent to the Chief of the Forest Service. We have read it and understand your concerns. The Inspector General's Report that you included had been previously sent to us by our Washington Office. We had already reviewed it. As mentioned above, the appeals process will not be bypassed by the Exemption.

The US Forest Service should have NEPA public hearings on proposed drastic timber harvest projects such as the Douglas-fir Beetle Project. The National Environmental Policy Act originally called for public hearings, input and evaluation before extensive timber sales are offered for sale by the FS. It is evident that this process has been circumvented and avoided, especially with the request for an "exemption from Stay of Implementation" made by the FS in this situation.

Response: We have provided many opportunities for public input and evaluation, including 7 public meetings in December 1998 and February 1999 at a variety of locations around north Idaho, and making

the DEIS available at local libraries and ranger district offices. See the beginning of this Appendix for a description of the public involvement activities that occurred before and after the release of the DEIS.

Notwithstanding the magnitude of the current outbreak, it is not well established that the infestation is an unexpected event, or a serious occurrence, or a situation requiring urgent action given historic Douglas-fir beetle outbreaks. Therefore, please clarify the need for requesting an "Exemption from Stay of Implementation" under 36 CFR 215.10(d), and include such rational and procedural requirement as part of the description of the Record of Decision process.

Response: The rationale for our request for an exemption from stay of project implementation during the appeals process was documented in a letter to the Chief of the Forest Service. The request was made under categories ii and v of 36 CFR 215.10(d). These categories are:

"ii. Hazardous or unsafe situations as a result of wildfire or other circumstances." This request was based upon the increased risk of stand-replacing fires in the urban interface and hazardous fire fighting conditions created by large, dead trees."

"v. Sudden outbreaks of forest pests and diseases." This request was based upon the high risk of spread of the beetle epidemic onto nearby private and public lands."

The exemption was requested and granted for 4000 acres of lands on the Coeur d'Alene River Ranger District where there were areas at generally low elevation, near private and state lands, and were high priority for treatment. A copy of the letter to the Chief is in the project file. Additional analysis and discussion of potential fire related effects can be found under the Fire section for the Coeur d'Alene River District in Chapter III of the FEIS.

Proposed "emergency" rules in their entirety are contrary to findings of highly qualified and renowned scientists and forestry experts in fields of biology, including especially entomology, silviculture, forest pathology economics and law.

Response: See the response above about why we requested the Exemption from Stay of Implementation. The information contained in this document is based on findings of highly qualified and renowned scientists and other experts. Although it is not clear which scientists and experts you are referring to, it is not uncommon for members of the scientific community to disagree on a variety of subjects.

The January 19, 1999 letter that accompanied the DEIS mentioned an "Exemption from Stay of Implementation" that was requested from the Chief of the Forest Service. The request to the Chief also was not available to the public for review before the March 16th deadline for public comment.

Response: 36 CFR 215.10 (d) requires the Responsible Official to notify the public that the Forest Service intends to handle the project as an emergency. The public was notified of the request in the cover letter to the DEIS. A public response period is not required or appropriate for the request.

DECISION HAS BEEN MADE

Similar Comments There were two similar comments that stated that the decision has already been made to log in response to the beetle episode.

Response: To initiate any project, the Forest Service makes a proposal. This starts the process of involving the public so they can participate and be informed on the project. The proposal represents what we think is the right thing to do to address the problems we have described given the information we have at the time. Public comments help us gain further information and formulate alternatives to the proposal that address public issues and concerns. The FEIS discusses trade-offs of each alternative and are available for the decision maker to choose, including Alternative A - No Action. The decision is not made until the Record of Decision is signed.

Individual Comments
The huge uncertainty of the extent of beetle mortality makes the difference between Alternatives B, D, and E practically meaningless. In fact, the very inclusion of two alternatives (B and D) which project entirely different beetle mortality scenarios grossly contradicts the DEIS's position that there can be good, educated guesses as to how many trees will be killed in any given area. The approach in this DEIS is similar to that for the Coeur d'Alene River District's Ice Storm EA--a programmatic rather than site-specific approach that other officials were not willing risk litigating. Under Alternative D, (II-11) it states: It is important to the understanding of this alternative to remember that no treatments would take place in these additional, high potential stands unless the beetles actually become active or more active in these stands. Similarly, the watershed restoration road work associated with access to these stands and fuels treatment within the stands wouldn't occur either unless the infestations spread. So if the ROD were to choose alternative D, it may really be choosing Alt. B, since the beetles may actually not spread as far as Alt. D projects. So how can the DEIS claim that a choice of Alt. D would be an informed one? If this tells us anything, it tells us that Alt. D has already been chosen--why bother providing input?

Response: We have used the best science available to predict where the beetles are likely to go, and have analyzed effects fully over those areas. Due to the length of time required to complete an EIS, we recognized that another beetle flight would occur before any action could be implemented from this project. All alternatives are based on the same site specific knowledge of the current infestation levels and the same assumptions were used for each in projecting beetle kill, spread over the next few years, and the effects of these. Based on this and other comments, the methodology and assumptions that we used have been clarified and consolidated for the FEIS and can be found in the Vegetation Sections in Chapter III.

The differences between Alternatives B, D, and E are distinct (as are the other alternatives) in what and where management actions are proposed. As discussed in Chapter II, Alternative B only proposes to treat forest stands which were infested by the fall of 1998. Alternative E took the same approach but, in response to issues raised during scoping, limited harvesting to only removing dead and infested trees and did not treat within the dry site old growth stands. Under both of these alternatives the beetle infestation is expected to spread and expand beyond the treatment boundaries. The potential effects of that spread are considered in the cumulative effects for all alternatives.

Alternative D is unique in that it uses an adaptive approach to address the uncertainty inherent in predicting exactly how far the beetle infestation will spread. It is based on the same assumptions used for the other alternatives, but proposes to monitor the spread in specific additional stands having characteristics which make them highly susceptible to beetle attack.

Alternative D was identified in the DEIS as the "preferred alternative," as recommended in the regulations, so you and other reviewers could know which way the deciding officials were leaning at that time based on the analysis in the DEIS. The purpose is to allow reviewers like yourself to focus your comments to better influence the final decision.

APPEALS

Individual Comments
Asked if we brought all appellants to the negotiating table if there is an appeal.

Response: When we receive an appeal, we are required to offer to meet with the appellants to try and resolve the appeal before going through the formal appeals review process. If there is more than one appellant, we can meet with each appellant separately, or together by agreement, to attempt to resolve the appeal.

The requirements of NFMA are directly related to the proposed logging, especially the over 1,000 acres of clearcuts planned for the Coeur d'Alene National Forest.

Response: There are no clearcuts planned for the Coeur d'Alene National Forest. Please refer to the Silvicultural Terminology located on the "Explanations of Terminology" card that accompanies the FEIS. The requirements of NFMA do apply to these areas.

Since the Project Files were not completed during the Draft EIS process the public was unable to inspect the complete files for the Fisheries or Hydrology sections of the DEIS.

Response: Any information that was used in developing the DEIS was available to look at upon request. A member of KEA did request specific information, which was supplied. The entire project file was not organized in a completed format, but all parts were available.

MONITORING

Individual Comments

We urge the IPNF to adopt some of the Newport Ranger District's monitoring requirements. Where the IPNF states that monitoring will be conducted on roads for noxious weeds "if funding is available", the Newport RD states that monitoring will be done along roads, sale units, obliterated roads and other disturbed areas." Newport RD is monitoring for snag retention...the PLRD is apparently not. Monitoring items for Newport include soils, down woody debris, visual quality objectives, etc. PLRD apparently is not monitoring these categories based on the information provided in the DEIS...at least specifically for this project.

Response: Differences in monitoring requirements between the IPNF and Newport have to do with the fact that each Forest is following its own Forest Plan, as well as guidelines and policies set forth by two different regional offices (the Pacific Northwest Region and the Northern Region). There have been some changes in monitoring requirements between the draft and final EISs. Please refer to Chapter II.

The [Hayden Lake Recreational Water And Sewer District] must be kept advised of the development of standards to be utilized in the Selected Plan, and allowed an opportunity to offer input during the implementation process which includes monitoring.

Response: We welcome the Board of Directors and any other interested members of the public to join our staff for one or more field trips to proposed treatment areas if project activities commence.

Identify the criteria to be used to select projects for BMP implementation monitoring (p. II-26) and describe other supplemental monitoring activities which may occur incidental to administration and/or oversight of a timber sale contract.

My main concerns are...careful monitoring of harvest and regeneration activities to minimize damage to water quality and remaining trees.

Response (to the previous two comments): Implementation monitoring will occur on all of the proposed activities and mitigation measures. Refer to Chapter II, Implementation Monitoring and Appendix F for a list of additional monitoring activities.

Recreation

One general comment was received regarding recreation. The commentor felt that camping and fishing areas would be affected negatively by logging with a "bunch of stumps where a forest once stood." The effects to various recreational facilities and opportunities were examined in the FEIS.

Main concern is closing any roads that are currently open. Needs to be adequate access for recreation such as snowmobiling, etc.

Response: No main access roads to recreation developments or prominent dispersed campsites would be closed. Although some secondary roads would be closed, ample access would be maintained for such traditional recreation pursuits as hunting, berry and mushroom picking, etc.

Although there may be some temporary disruption of snowmobile routes, no designated snowmobile trails would be permanently closed. The roads which would be affected are disclosed in Chapter III, Recreation. If temporary disruptions of snowmobile trails occur because of snowplowing, these effects would be short-term and would last only for the period of operations. Overall, there would be a minor effect on the overall snowtrail system of over 300 miles on the Coeur d'Alene River Ranger District. In the past, the need to plow some roads which are part of the trail system has occurred. Our cooperators and many of the public have learned to adapt to minor interruptions in trail routes.

I would like to see "obliterated" roads to be still passable to foot traffic. I know this is difficult given the proliferation of 4-wheelers and such, but as a hiker, berry picker, and hunter, more trails mean more access.

Response: Most roads designated for obliteration are "front end obliterations," where only the segment of road that intersects an open system road would be obliterated. Normally, less than two hundred feet of road surface actually would be returned to the natural land contour. Drainage structures would also be removed from the road. It would be still possible to walk on such a road until, inevitably, the road is obstructed by brush and tree growth. These Level 1 closures are specified in Appendix D.

RECREATION (Coeur d'Alene River District)

Individual Comments

The health and safety of the forests surrounding Coeur d'Alene are also of concern because these forests are where the citizens of Coeur d'Alene spend many recreational hours. They are also one of the attractions for Coeur d'Alene's tourist industry.

Response: One general comment was received which stated that the forests are where many citizens of Coeur d'Alene as well as tourists spend their recreational hours. We certainly understand the importance of recreation to the local life-style and economy. The effects to the recreation resources on the Coeur d'Alene River District are analyzed in Chapter III of the FEIS.

Units 182, 181, 295 - We would like to work with you and we need your help with these. Carrill Peak is one of our day rides with a fantastic overlook of CDA and Lake CDA. If we can have help opening the old BBQ trail from Red Horse Mtn. - Cottonwood Mtn.-to the junction of FS 614 and Blue Lake Creek road you would be able to log these units early to mid summer (see Unit 272). If there was a gate at the entrance of the old lookout access road to Red Horse we would maintain it. In return, we would like to be able to place a water tank on Red Horse during our season so we can water horses during our lunch break on the ride. Units 273, 274, 274, 2 5, 276, 185 - Timing is probably unimportant if the truck traffic is routed out through Beauty Saddle. The only other item would be access to our water tank that we use on our all day ride to Swan Peak.

Response: Since receipt of your comments, we have met with you to discuss your concerns. As a permitted outfitter-guide, we can accommodate some of your requests and address your concerns through the permit administration format. We will continue working with you.

The harvest in the Coeur d'Alene Area will greatly impact the Canfield Mountain Trail System. Alternative B would close the eastern part of the trail system and Alternative D would completely close the trail system for a temporary period. The Canfield Mountain Trail System is one of the most heavily-used trail systems on Idaho Panhandle National Forest. The trail system also offers Coeur d'Alene residents the nearest trail system in a roaded-modified setting.

The draft EIS fails to mention any mitigation measures that will be taken to insure the integrity of the trail system. Our department has heavily invested into the Canfield Mountain Trail System with our Off Road Motor Vehicle Fund grants by providing $27,000 to the Fernan Ranger District to reconstruct and establish a trail system on Canfield Mountain. In order to protect our investment, we recommend that the following mitigation measures be implemented. 1. No harvest activities should occur directly in the trail corridor. If harvest activities are needed, the trail tread should be reestablished immediately after the harvest and sufficient blazing should be provided through the harvest area. Slash and other debris should be removed from the trail by the logging contractor. The Idaho Panhandle National Forest should monitor the logging activity during the operation to insure the trail system is impacted minimally. 2. The temporary closure of the system should occur during the time of year when trail use is lowest. The closure should also be for as short as time as possible.

Response: This response applies to the above two comments. The effects to the Canfield Mountain Trail System are discussed in Chapter III of the FEIS.

The Canfield Trail system would be affected by the logging operations. Some logging would overlay trail corridors and portions of the trail system would be closed during periods of operations when it would not be safe to allow public use of the trails. It could be possible that half of the trails could be closed to ensure public safety. The District timber sale administrative personnel are very aware of the importance of the Canfield Trail system. They would monitor the logging and would work with the logging contractors to limit the extent and duration of effects and to restore trail facilities as quickly as practical. Winter operations possibly would be used in the Canfield area which would greatly reduce impacts to public use and to the trail facilities.

Some post-sale activities such as burning and tree planting would occur for as long as two years following the logging. These activities, however, would be short-term and limited in duration. The public would not lose use of the trail facilities while this work is occurring.

Mitigation measures are outlined in Chapter II, Recreation under Features Common to All Action Alternatives. Your suggestions for mitigation were considered and incorporated. Trail tread, signs and other facilities would be restored once logging operations are concluded. Logging debris would be removed from the trails following harvesting and burning operations.

Page III-251 of the draft EIS states that an ATV trail system using logging roads might be developed in the Hayden area if the need is identified and funding found. ATV use in North Idaho is rapidly growing. Our ATV registration numbers show that ATV registrations have gown 149% over the past four years in North Idaho. Our department offers several funding sources for the development of ATV trails such as the Recreation Trails Fund, the Off Road Motor Vehicle Fund, and the Motorbike Recreation Fund. Our department would also be willing to offer assistance in the construction of ATV trails with our Trail Cat program. We will provide the equipment and the operator. All that is required for Forest Service is providing some place for our operator to stay and providing someone to work with our operator for safety reasons. We encourage the Forest Service to develop an ATV trail system in the Hayden area if funding is available.

Response: Thank you for your comments and offers of assistance. We will be discussing assistance opportunities with you outside this project. The opportunity to provide a trail system for ATVs will be

addressed in the Coeur d'Alene River Ranger District Access Management Environmental Assessment (EA). A decision will be released later this summer regarding access management, including ATV use.

RECREATION (Priest Lake District)

Individual Comments
Also concerned about what the cutting on the other side of the ridge (i.e. Peewee Ridge) will be like because there are a lot of trails back there with high recreational use.

Response: The effects to these recreation trails are discussed in Chapter III, Recreation. There are five units located near the Peewee-Steep Creek trail system. Four of these units would be helicopter-logged so little physical change would occur to the trail. For the remaining unit, a small portion of the Steep Creek trail would be located within the unit. A light removal of dead and dying trees would occur, and little effect to the trail is expected.

The trail system would be protected with the design criteria specified in Chapter II. Trail tread would be protected from logging activities, and any debris would be removed. During harvest operations, signing and other safety measures would be employed to ensure that trail users are aware of project activities.

The EIS states that there would be no direct effects to trails in the Lakeface-Granite area. The EIS also states that use of these trails might be temporarily interrupted by harvest activities such as the use of helicopters and trucks on haul routes. We suggest to minimize the interruption of trail activities that harvest activities be limited to the weekdays. That would still make the trails available for weekend recreation trail use.

Response: As stated in your comment, no direct effects would occur to the three recreational trails in the Lakeface-Granite project area. All three trails are located at a distance from harvest activities so minimal, if any, interruption of use would occur. Because of their location in relation to units, there is no need to restrict the harvest activities to weekdays.

SNOWMOBILING (Coeur d'Alene River District)

Individual Comments
Timber harvest in the Hayden Area would plow some roads for winter harvest. The EA states that existing trailheads for snowmobile would remain available and that snowplowing would be prohibited where it would completely eliminate trail access from identified trailheads. The Fernan Saddle Snowmobile trailhead is one of the most popular trailheads within the Kootenai County snowmobile trail system. Elimination of snowmobile trails by snowplowing will concentrate snowmobile use on the remaining trails. For this reason, we believe that a date limit should be imposed on winter logging. We suggest that stopping winter logging by December 15th would allow the snowpack to accumulate on those trails to amount that they could be groomed by the middle of January. We also encourage you to work with the Kootenai County Snowmobile Advisory Committee to notify them which roads will be plowed so they can plan their grooming schedules.

Response: Winter harvest activities are a possibility on the Coeur d'Alene River District. We anticipate that snowplowing for log haul would not affect many of the groomed snowmobile routes. Moreover, there are many other unaffected routes available to the public. The harvest operations would not affect the core areas of the snowmobile trail system that includes the North Fork and Little North Fork River corridors of the Magee area or the popular mountain lake trails accessed from the Silver Valley. There are several design criteria in Chapter II that relate to snowmobiling and snowplowing. Additionally, several roads are listed where snowplowing would be avoided on the District.

Potentially, plowing would affect the Fernan Saddle snowmobile parking area. The plowing, however, would not eliminate use of the parking facility or the trails system. However, there would be some

disruption and reduced space for parking. This trailhead has been plowed several times in the past for similar purposes. Snowmobilers that have used the Fernan Saddle trailhead for several years have become accustomed to plowing as it serves as a primary access point into the main entrance of the District.

We will continue to work with the snowmobile committee, and identify roads that will be plowed.

Our (Coeur d'Alene Snowmobile Club) only concern is the closing of any through or loop roads being groomed or used by snowmobiles. I studied your maps and cannot tell which roads are affected. We need to know the numbers of all roads being considered for closing or obliterated. We don't care for the colored maps, as they are too vague and hard to follow.

Response: The roads which are affected are listed by road number in Chapter III of the FEIS. The mitigation concerning snowplowing is listed in Chapter II under the Recreation subsection of Features Common to All Action Alternatives. These include descriptions of roads where snowplowing would be avoided as well as other features affecting snowmobiling.

SNOWMOBILING (Priest Lake District)

Individual Comments

Timber harvest on the Priest Lake Ranger District would plow some roads for winter harvest in both the Lakeface-Granite area and the Binarch-Lamb area. The Bismark Mountain area is one of the most popular snowmobile trails on the district. Elimination of snowmobile trails by snowplowing will concentrate snowmobile use on the remaining trails. For this reason, we believe that a date limit should be imposed on winter logging. We suggest that stopping winter logging by December 15th would allow the snowpack to accumulate on those trails to amount that they could be groomed by the middle of January. We also encourage you to work with the Priest Lake Snowmobile Advisory committee to notify them which roads will be plowed so they can plan their grooming schedules.

Response: Because of the specified winter logging, it would be necessary to plow some roads in the Lakeface-Granite, Binarch-Lamb, and the Upper West Branch areas. The roads which would be plowed are listed in Chapter III, Recreation. To mitigate these effects, design criteria regarding winter harvest activities are listed in Chapter II. Among these design criteria would be restriction of logging truck traffic on weekends, when a majority of snowmobile use occurs.

An important snowmobile trail is the Bismark Mountain trail. As stated in Chapter II, there would be an interruption to snowmobile use during the period of harvest operations due to snowplowing. To maintain grizzly bear security, the harvest units in this area are designated for winter logging when the bears would be denning. This temporary closure would be short-term, however, and be limited to a single snowmobile season. Because of this need for winter logging in these areas, we cannot accommodate your suggestion of restricting logging after December 15th.

The Ranger District remains very committed to working with the committee on the snowmobile trail system.

FIREWOOD GATHERING

Individual Comments

I believe you should allow some private wood cutting for small areas that might not be economical for commercial harvest.

I hope that some close in areas can be designated as firewood collection areas as a service to the local population.

Response: We did not designate any firewood areas as part of this project. However, there will be many areas with scattered dead trees (that are not included in any harvest units) providing increased firewood opportunities.

Roadless/Wilderness Areas

WILDERNESS

Individual Comments
Would like us to be able to conduct more activities in the wilderness areas should the bugs become a problem there.

Response: The closest wilderness is the Salmo-Priest which lies on the Priest-Pend Oreille Divide several miles north-northwest of the project area. There is low risk of Douglas-fir beetle infestation in the Salmo-Priest because of the existing species composition within the wilderness. Moreover, the Wilderness Act restricts certain types of activities which can occur in a wilderness area.

ROADLESS

Similar Comments Two commentors requested that no activities occur in any roadless area.

Response: No activities would occur in any roadless area for any alternative.

ROADLESS (Coeur d'Alene River Ranger District)

Individual Comments
(B) Roadless area: It is not clear in Chapter II as to whether any of the alternatives would have units that are within 1 mile of the Creaky Hart Roadless Area. The Final EIS should have a written statement that will describe where proposed units would be in relation to the Roadless Area.

Response: No units lie within any existing roadless area. The actual name of the roadless area to which you are referring is Trouble Creek. There are two units (units 81 and 82) which lie adjacent to the road which serves as the boundary of the roadless area. These units are both selective (i.e. salvage) harvests.

ROADLESS (Newport Ranger District)

How much unroaded area is being proposed for entry?

Response: No roadless areas are included in the proposed activities on the Newport Ranger District.

Roads

ROADS (Coeur d'Alene River District)

Individual Comments
We are concerned that the Coeur d'Alene District would not return existing barriered and non-drivable roads following the same standards the other two districts would (II-19).

Response: All design criteria and mitigation measures for roads on all districts would be accomplished following the same standards. Please refer to Chapter II, Design Features Common to All Action Alternatives. We also state under Effectiveness Monitoring - Access Management in Chapter II, that we will monitor road closure effectiveness.

The varying amounts of road removal (restoration, obliteration, etc.) in the different alternatives reveals the FS's low prioritization of watershed restoration. If a road has been identified for removal because of real or potential resource damage problems, then it is entirely irrelevant whether or not a timber sale is in the area for determining if the road should be removed. This is also revealed in the amount of road restoration/removal for Steamboat Creek in this DEIS as compared to the amount provided for in the Boston Brook DN (later canceled supposedly because logging for the beetle became a higher priority than logging for the root rot-see the Matthews letter, enclosed). The Boston Brook EA's analysis of the no-action alternative was full of discussion on how much worse Steamboat Creek would be without all the road removal that would occur under that DN's Selected Action. Yet this DEIS somehow forgets about all that ongoing damage and concludes the Boston Brook road restoration is much less a priority than the entirely different road segment removals now proposed in the Steamboat Creek watershed. This inconsistency is quite puzzling.

Response: Congress appropriates money to the Forest Service; expenditures are tied to distinct types of work. For example, it would be illegal to spend recreation dollars for timber stand improvement work. The forest receives a limited amount of dollars for road restoration work, regardless of how much is identified as needed. Harvesting the beetle killed timber allows us to complete road restoration work that otherwise would not be funded.

Alternative G was designed in response to public comment requesting that restoration work be completed with no commercial timber harvest. Please refer to Chapter II description of Alternative G as well as Chapter III analysis of Alternative G.

There is considerable difference in the area of harvest planned in Steamboat Creek under the beetle project as compared to Boston Brook; the beetle project would selectively harvest 100 acres, whereas Boston Brook would have had regeneration harvest (primarily clearcut and seedtree) on 770 acres. The sale area would have been much larger and the volume would have funded much more work. Restoration work under the Douglas-fir beetle project can only occur where there is beetle mortality.

On page II-13, you show a table tabulating the number of miles of various road work as a part of the alternative Description of Alt D. This table indicates nearly 21 miles of Permanent (new?) road construction. It is the only alternative to show additional, permanent road construction. Yet there is not one word mentioning these apparent new miles of roads in the description of Alternative D in the Coeur d'Alene Dist. On page II-6, you indicate "Road Construction" as being "Miles of permanent road constructed (Chapter II Alternative Descriptions). The referenced table on page II-13 goes on to outline about 21 miles of road for removal, 30 miles of road scheduled for reconstruction and zero miles of road to be realigned. However, if you go onto page II-25, your data indicates that as much as 61.5 miles of roads are candidates for Level 1 or Level 2 Road Obliteration in the CDA district. This last set of figures clearly appear to be near wishful thinking because you are quick to caution this work is not guaranteed but MAY be accomplished IF FUNDING BECOMES AVAILABLE. Further on, you describe "Watershed and Road Rehabilitation Terms". Things get even more confusing when under the chapter and Section covering Economics on page III-240, you summarize a brand new category of roads; 125 miles of reconditioned roads under Alternative D. Where are these reconditioned roads discussed? "Reconditioning" is not even covered in your definition of road work terms on page III-5! Furthermore, in attempting to locate the scheduled roads to be removed in the CDA district on your map for Alt D, I fail to see even 21 miles identified, let alone over 61 possible miles.

Response: We apologize for the confusion in the DEIS and have clarified many of your questions in the FEIS under Chapters II and III. Pages II-12 and 13 of the DEIS do show that Alternative D has permanent roads planned. Changes based on public comment and further analysis have decreased the miles proposed for permanent road construction to 3.9 miles. The term "reconditioning" is the same as "maintenance" as defined in "Road Rehabilitation Terms" located in the "Explanations of Terminology"

card that accompanies the FEIS. Please refer to Appendix D for a summary of activities proposed for each road and the guarantee of funding.

New permanent roads are proposed in the Beaver Creek watershed, reducing big game security. Based on the map they appear to be ridge roads, but one connects to a riparian road, indicating long term use of the riparian road is anticipated, raising concerns about continued negative impacts to watershed condition. We support new road construction where the new road is used to replace riparian or other roads slated for obliteration, and where the new road will not significantly impact watershed condition or wildlife security. The new roads proposed in the Beaver Creek drainage do not appear to meet either of these criteria. Could these harvest units be logged with helicopters?

Response: The new roads proposed for Beaver Creek are ridge roads and do not connect with riparian roads. It may appear they do on the map because of the small scale at which they are presented. A range of alternatives was developed to respond to comments expressed on both sides of the roads issue. Alternative C was designed to have no new permanent or temporary road construction, and analyzes the harvest units in Beaver Creek with helicopter yarding. System roads proposed in Beaver Creek would be barriered to provide elk security. Appendix D was developed for the FEIS to clearly depict what is planned for each road segment.

Road construction and reconstruction has two main negative effects on fish and wildlife: increased access, particularly motorized access, for hunters and resultant increased vulnerability of elk to harvest; and increased sediment production and higher risk of road failures with resultant sediment delivery to streams. These impacts can be reduced by implementing the following recommendations:

1. *Minimize the construction of new roads. Permanently close and pull the culverts on all new roads, except where the new road replaces a riparian or other poorly located road, and is not absolutely needed for future management activities. Replace existing floodplain or riparian corridor roads with ridge roads. Pull the culverts and re-contour roads no longer needed in the floodplain or riparian corridor.*
2. *Construct temporary roads as close to anticipated time of use as possible and obliterate them as soon as possible after they are no longer needed for sale activities. The Final EIS should specify a timetable for the removal of temporary roads - we recommend no longer than five years after initial opening, and preferably closed within one to two years of being opened.*
3. *Close all reconstructed roads that were impassable to motor vehicles or closed to motorized vehicles prior to reconstruction.*
4. *Use helicopters wherever feasible to minimize the need for roads.*
5. *Minimize the number of stream crossings in the design of roads, particularly those high in the watershed.*

Response: The five items that you list follow closely the design criteria used to develop the range of alternatives for this project. Please refer to Chapter II - Design Features Common to All Action Alternatives as well as Chapter II - Description of Alternatives.

Another concern is the present status of the 29.6 miles of roads to be reconstructed. If they are over grown and are in the process of reducing their negative effect on the water shed and fisheries again why can't other roads be used? Are new or reconstructed roads being provided for more efficient logging operations at the expense of the forest health?

Response: Appendix D has been added to the FEIS to help clarify the status of each road being worked on with the project. The Road Management Plan which is part of the project file tells if roads are currently brushed in. It is available on request. Some of the closed roads being used to harvest units have undersized culverts on them. Using them with this project allows the culverts to be upgraded with the timber sale and then pulled after the road is no longer needed. New and reconstructed roads are certainly being used for more efficient logging operations, but not at the expense of forest health (forest health being defined as both aquatic and terrestrial). Please refer to Chapter III effects analysis for watershed and vegetation.

We recommend the Final EIS clearly depict the miles of proposed reconstructed road which currently exist as brushed in or otherwise unusable by motorized vehicles, and prescribe alternatives which will improve rather than reduce elk security. The Final EIS should also specify a timetable for the removal of temporary roads.

Response: Please refer to Appendix D which provides a list of all roads being reconstructed, their current condition, access status and proposed treatment by alternative. There is a range of effects on elk security within the different alternatives. Please refer to Chapter III - Wildlife in the Coeur d'Alene section of the FEIS.

The FEIS does discuss how long temporary roads can stay on the landscape. For most temporary roads, the intent is to use and close them within one season. Some temporary roads access harvest units that need to have brush disposal work done as well as planting. These roads may stay on the landscape for up to five years before being obliterated. They would have effective closures placed on them during periods of non-use.

Why are additional miles of roads required? What does road removal mean and when would this occur? Will the removed road area be returned to the original slope? Are the various types of roads going to be moved or constructed away from stream areas?

Response: Permanent roads were considered (on the Coeur d'Alene District) where there were regeneration units which would need continued access for timber stand improvement work. Temporary roads were considered when units were selectively harvested, when the distances were relatively short, and when they could be placed on hillsides to minimize impacts to streams. If those conditions couldn't be met based on an interdisciplinary review of effects, then helicopter yarding was chosen.

A range of alternatives was developed to include a mix of no new roads, permanent roads and temporary roads. Roads can provide efficient access for harvest, site preparation and planting, as well as recreational use. All temporary roads in the alternatives would be obliterated after use. Road removal would be done by either the purchaser after use in the timber sale, or following post sale work. Not all of the road prisms will be returned to their original slope. Please refer to the definitions of road work in the "Explanations of Terminology" card that accompanies the FEIS.

Roads that are planned for re-alignment would be done to move them away from the riparian area. New permanent and temporary roads would be constructed well away from stream bottoms; however, they may intersect intermittent and ephemeral draw crossings higher on the slope. All of these crossings would be designed according to INFS standards.

I'm concerned about the county road around the lake (Hayden).

Response: There would be some hauling on the county road around Hayden Lake when logs are hauled out of Jim Creek. Exact haul routes are specified in the timber sale contract. County road maintenance is not a responsibility of the Forest Service, however, the county does receive money from Forest Service timber sales for roads and highways. When hauling occurs on roads where other public traffic is expected, the contractors are required to place warning signs at significant junctions and include CB channel numbers to improve safety.

ROADS (Priest Lake District)

Individual Comments

My concern regards the maps that were provided and the misrepresentations regarding the road systems. I am specifically writing regarding the Lakeface-Granite map. The actual road system is very substantially less than the system that you show. I wish you would portray the access/road issue accurately to prevent people from requesting more restrictions due to your misrepresentations.

Response: The fine black lines representing roads on the map include all roads regardless of whether they are gated, impassable, brushed in, or open. There were some old skid trails and firelines that appeared on the DEIS maps and most of these have been removed. The reason so many of these non-drivable roads, skid trails and firelines appear on our maps is that it provides us with analysis information about those man-made features that could possibly be contributing sediment to watersheds or security problems for wildlife. For a complete list of all roads, their current condition, access status, and proposed treatment, please see Appendix D.

[Access to this area via USFS roads #334 and #416] As stated above, Quartz Creek is accessed by USFS roads #334 and #416. These roads have been in existence since prior to or around 1900 when they were owned by the Humbird Lumber Co. During that entire time the road has been used not only by residents of the area to access their home but also by countless other local people for various recreational and other uses. Despite heavy use of this lacustrine silt based road, and while high quality roads were built nearby (i.e. on Pee Wee ridge) to access timber, it was not until just last year (1998) that any significant amount of rock surfacing was done to road #416. I understand that prior to this work, USFS road #416 was listed as one of the top resource protection problems in Region 1 of the USFS. This work was finally justified and funded only as a way to improve the fish habitat in Quartz Ck.... Roads #416 & #334 are our primary access to and from town. A portion of #334 that lies right on the edge of an outside bend in the Priest River near McAbee Falls (SE corner Sec. 18, T57N, R4W) has always been subject to erosion. This year it has been more serious, encroaching 25-30% of the way across the roadbed. USFS road #416 to the north serves as an alternate access route for not only those who live here in lower Quartz Creek but also for those living on the upper end of the drainage who normally access their property via #416 from highway #57 across Pee Wee Pass.... The alternative maps for the Quartz Area are color coded for proposed road work. They show that sections of road #416 in Sec 36 T58N R5W are coded for changes. While the portion of #416 south of the Quartz Creek Bridge is coded for reconstruction (a continuation of work not completed last year, the portion north of the bridge to the intersection with USFS road #239 is coded for "Obliteration." In recent talks with Dale Schrempp of the Priest Lake District I expressed strong concern that #416 would be closed in that section, eliminating recreational use and our alternate access route. I was later assured that the plan was to relocate the road further from the creek. While this eased my concerns to some degree, I remain to be convinced that this effort would be a wise expenditure of limited funds for road improvement. While this section of road is near the creek, it has historically been by far the best section of a very bad road and I'm not convinced that it has contributed substantially to the degradation of fish habitat in Quartz Creek.

Response: We are glad that the road work on Road 416 was done last year. As you state, this road has been heavily used by residents over the years. We are unsure when the road originally was constructed, but portions of the road were built by Humbird Lumber Company. The road also was improved by the Civilian Conservation Corps (CCC) in the 1930s. The CCC also built additional roads in the drainage primarily for fire control purposes. We would like to turn the maintenance responsibilities of Road 416 over to the county because of the access needs of the several permanent residents of Quartz Creek, including schoolchildren. However, the current condition of the road is not up to county standards.

Because of the lacustrine soils in the drainage, surfacing is especially important. Segments of roads have been gravelled in the past when timber sales occurred in the drainage, but the surfacing has been limited only to those roads used by the timber sale purchaser because of contractual requirements. The last timber sale in the drainage was the Lower Quartz Timber Sale, which was sold in the late 1980s. The Quartz Creek Road was identified by District personnel as a high priority for special funding (10 percent funds) because of the westslope cutthroat fisheries and the year-round use of this road for residential access.

We agree with your assessment of Road 334 near McAbee Falls. The erosion of the road is serious. We have an easement through private land on this stretch of the road. The road needs to be re-located away from the river. We have attempted to acquire an easement to allow this move, but have been unsuccessful.

You are correct that there are no plans to close the section of Road 416 north of the bridge. The proposal, however, does include moving the road further from the channel of Quartz Creek. While this relocation of Road 416 is not as high a priority as the gravel surfacing and other reconstruction done on the road last year, it is a "piece of the puzzle" to improve the overall aquatic health of Quartz Creek.

It is my belief that the heavy use of the Forest Service road just east of our newly purchased land is having a detrimental impact upon the larger mammals in this area. Could a restricting gate and sign be put up at the road entrance as it turns north off of Peterson Road?

Response: The road to which you refer is identified as a system road open year-round on the Priest Lake Travel Plan. The road is used by a number of local residents to gather firewood and for recreational driving, hunting, and other uses. The road is located several hundred feet from the riparian area so there is low risk of any sediment reaching a live stream. The road also is routinely maintained.

Access to National Forest lands is an important public issue. Several commentors stated that they did not want any reduction in roaded access. Compared to other roads on the Priest Lake Ranger District, this road has a high level of use and fewer resource impacts.

My major concern is with the very sizeable outbreak in the Skip Creek and Bath Creek area immediately adjacent to Stimson ownership in Section 31, T36N, R46E, W.M. As you know we requested access to this parcel across USFS lands in 1992 with a proposed road location. Given the adjacency of proposed activities to Stimson ownership plus detection of mortality to trees on Stimson land, there is a very good opportunity to cooperatively develop a mutually beneficial road access system to both parties land. This possibility needs thorough examination by this process.

Response: There is one unit (5) in the Skip-North Fork Lamb Creek drainages, and two small units in the North Fork of Lamb Creek. These units would be helicopter-logged because there is no existing access. There were additional areas (5a and 5b) that are included in Alternative D. Currently, there is no infestation in these adjacent stands but they were identified high hazard because of the amount of large Douglas-fir. If these units become infested, it would be difficult to construct a road due to the steep terrain and watershed condition of the North Fork of Lamb Creek. Because of the 1926 and 1939 fires, stand conditions are such that there is little threat to stands north and west of your parcel.

The Olson Tunnel Road #1092.2L is proposed for obliteration, however, that is a cooperatively owned and built road that originates on Stimson land and pending further review we object to such obliteration for the portion that accesses Stimson land in Section 31, T33N, R46E, W.M.

Response: This was a mapping error and has been corrected. The road work now is proposed to begin where it leaves Stimson land (see map).

The Pickle Knob Road #1092.20 has reconstruction work proposed for it. This road also is a cooperatively built and owned road that accesses Stimson land. We are interested in the details of the proposed work and its impact on our access on the road.

Response: The reconstruction for this road consists of light reconstruction activities around stream crossings. This work would not affect your access. Please see Appendix D for details on Road 1092 and proposed treatment.

ROADS (Newport District)

Individual Comments

Where in the DEIS is temporary road construction discussed for the Newport RD? It is not outlined in the economics chart, and under temporary road construction there are $0 dollars allocated. Is temporary road construction being proposed or not? Again, "Temporary roads will be constructed on stable sites where hazards such as steep slopes,

concentrated water, or sensitive geology are not present." First, this contradicts the no temporary road construction as well as the building of roads on stable sites.

Response: No roads, temporary or permanent, are proposed for construction in the Newport Ranger District.

ROAD CONSTRUCTION

Similar Comments There were 24 similar comments about road construction. Most said they were concerned that too much road construction was proposed. Others said that roads contribute to erosion, fragment wildlife habitat, and cost money to maintain. Several commented that they did not want to see 130 miles of roads re-opened and 50 miles of new roads built. Some people were concerned about 183 miles of road reconstruction. Others questioned why the Forest Service would build new roads if we can't maintain the ones we have. Two people said they thought there was a moratorium on road building. One person said they were OK with new road systems but doubted the need for many roads to be built. One person asked how a net increase in roads leads to restoration.

Response: There would not be a net increase in roads with any alternative. The majority of new roads being proposed under all alternatives would be temporary roads and would be obliterated after use. Alternatives B, E and F propose only temporary roads that would be obliterated after use. Alternative C was designed to respond to road building concerns and does not propose any new road construction. Alternative D proposes to build temporary roads on Priest Lake District, and both temporary and 3.9 miles of new system roads on the Coeur d'Alene District. Between the Draft EIS and the Final, miles of permanent road construction were reduced substantially from 20 to 5. Internal reviews and public comments led to this decrease. Alternative G does not include any road building but does include much of the same repair work and obliteration on roads (as other alternatives) where it will benefit watersheds and wildlife. All alternatives would complete road obliteration work for a net reduction in total road miles.

Roads that are built today are designed to much higher standards than those built in past decades. Culverts are sized larger to handle flows, relief culverts are designed in the road and roads aren't built up the bottom of narrow drainages. Restoration projects would be implemented on older roads with known problems, and portions of roads would be obliterated that are impairing how a stream can function in narrow drainage bottoms. New roads being built under any action alternative would also be located higher on the slope.

Of the roads that are listed under "reconstruction," many of these are roads currently closed to motorized vehicles and are contributing to watershed problems. These roads would be repaired to improve watershed conditions, and would be closed to motorized vehicles again at the end of the project.

The moratorium on road building applies to Roadless Areas and other areas with special characteristics. See Chapter II, Features Common to All Action Alternatives, "Roadless" for more information.

Please refer to Chapter II for information on the amount of proposed road construction and reconstruction for each alternative. See Appendix D for a list of all roads, their conditions and proposed treatment of those roads. Refer to the "Explanations of Terminology" card that accompanies the FEIS for definitions of the different types of road work that could occur.

Similar Comments There were two similar comments praising the Colville National Forest for using only existing roads and questioning why the IPNF didn't do the same.

Response: The differences in approach between the Colville National Forest and the IPNF on proposed road construction were due to the fact that the infestation areas prioritized for treatment on the Newport

Ranger District are all accessible by existing roads. This is not the case on the IPNF, and therefore, temporary and some permanent road construction are proposed in some alternatives.

Individual Comments
In some cases, just extending road less than 1/4 mile (if one is not already there) will reduce these [sale] costs substantially. Most of these proposed extensions are along ridge tops and on gentle slopes, well away from streams, that would not create any sedimentation problem. Most of the proposals can be done with little or no additional road work. Probably more importantly, these extensions would also give you the needed options for future management activities.

Response: Sedimentation is not the only concern regarding new road construction, both temporary and permanent. Another concern raised is wildlife security for both big game and furbearers. The project designed alternatives to respond to a variety of these concerns.

You have to look at any proposed activity as a long term opportunity. In order to maintain forest health, we must have the opportunity to salvage and to do the other silvicultural tools to increase the vigor of the forest. Managing any parcel of land will always entail multiple entries. Helicopter logging precludes many of one's management options within that stand. If another event occurs that demands some of the management activity it must also be helicopter based. If we are looking at long term management goals, including fire suppression, we must have access into these acres. This does not mean roads every 400 feet, but there should be some access into those areas of the forest that are designed to be in your long term management goals. Roads can be designed and placed on hillsides and ridges that do not cause any environmental problems.

Response: We are foregoing the opportunity to build permanent roads into some areas with this project. We have received public comment opposing any new roads as well as comments like yours proposing more roads. The agency has developed a range of alternatives to balance these opposing viewpoints.

Identify all infested areas currently accessible by roads and immediately put up sales there. If roads were gated or closed, close them again after the sale. Quickly plan to access unroaded areas using any means necessary - keep in mind that roads can be built and removed with minimal impacts.

Response: Existing road locations were only one factor that determined which areas would be treated. Other factors included extent of infestations, and priority of ecosystem restoration opportunities related to vegetation, watersheds and fuels reduction. The majority of the roads currently gated or closed that would be used for the project would be gated or closed at the end of the project. The majority of roads proposed for construction would be temporary and obliterated after use. See Chapter II for Alternative activity descriptions and design features, and Appendix D for a list of all roads, their conditions and proposed treatment.

I believe that temporary road construction can be an efficient and cost effective way to access needs of National Forest resources. However, it is critical that a thorough analysis be conducted to ensure that: 1) the roads will not be needed for foreseeable future management activities on the forest. If the roads will be needed in the future, they should be constructed to a permanent standard. 2) the roads be truly temporary and adequately closed and removed following harvest. Failure to close temporary roads in the past has, in many areas, resulted in the proliferation of roads that do not meet necessary environmental standards.

Response: The majority of the roads proposed for construction would be temporary roads. These would be obliterated when the project is complete. The only permanent roads proposed for construction would occur under Alternative D in the Coeur d'Alene River District.

We also question your road access strategy. It is possible to build adequate access systems without adverse water quality impacts. The techniques and equipment are available, and road access can be controlled to address wildlife security. A good road system is necessary to provide future access to treat stands until age class distribution can be improved and forest health is reestablished. Further, improved access can lower the amount of helicopter logging and increase revenues

for restoration projects. This is just plain good business, and can be accomplished without adverse environmental impacts. You have proposed too much helicopter logging.

Response: Part of the purpose and need for the project is to accomplish watershed restoration in these areas where we'll not likely get appropriated dollars. The range of alternatives had to find a balance between new roads, temporary roads, helicopter logging and the associated impacts to resources, as well as economics. Modifications were made between draft and final in response to public comment.

Road construction and reconstruction activities may adversely affect aquatic and terrestrial ecosystem integrity and may interfere with watershed and wildlife management activities. For example, roads result in stream sedimentation and soil erosion, and they provide for human access which can result in groundwater and surface water contamination, and diminution of fish and wildlife habitat. Accordingly, please disclose the criteria (e.g., why, where, etc.) for determining the total mileage needed for temporary and permanent roads required to support the proposed level of timber harvest and revegetation restoration.

Response: Permanent roads are proposed where there is an anticipated long term need for a transportation system. An example is where a current arterial road is obliterated and a new road segment is constructed on a better location to maintain access to an area. Permanent roads were considered on the Coeur d'Alene district where there were regeneration units which would need continued access for timber stand improvement work. Temporary roads were considered when units were selectively harvested and when the distances were relatively short. In either case, roads were only proposed when they could be placed on hillsides with minimal impacts to streams. If those conditions couldn't be met based on an interdisciplinary review of effects, then helicopter yarding was chosen. Approximately 50 percent of the area is proposed to be helicopter logged in the alternative with the most proposed road construction.

ROAD CLOSURES

Similar Comments There were three similar comments expressing concern that closing roads would reduce access for forest users. One person asked if we consider historic use of a road when we decide to close them.

Response: There are several factors to consider before deciding to close a road. Regarding use, historic use patterns is one factor we consider along with whether the road may be needed in the future for other forest management activities or if there is a "special use" permit for the road. We also need to consider factors like whether the road is causing detrimental impacts to forest resources such as watersheds or wildlife. And all this is considered in light of what the cost of maintaining that road is, and how high a priority it might be for maintenance funding. Please see the Recreation section of Chapter III for each district, Appendix D for a list of all roads and their proposed treatment, and Chapter II - Summary of Effects (Road Management Table) for further information on road closures.

Individual Comments

The maps associated with the EIS make it very difficult to identify the roads to be closed and the potential effects of the closures. I do not feel that the EIS adequately addresses the full or complete effects of the proposed closures. The EIS must clearly indicate the current status of the specific roads to be closed and the effects of the closure. Each road should be addressed individually. Broad general statements such as "road closure will reduce sedimentation" or "road closures are required for wildlife security" are not sufficient to justify road closures. Some specific issues that need to be addressed include: Are they system or non-system roads. Are they currently being used by the public for vehicle access. Have they revegetated or are they environmentally stable. Are they dead end spurs or do they connect to other parts of the system. If connecting to other roads, how much total area will become inaccessible to vehicles. What are the environmental concerns associated with the specific road and can these concerns be mitigated without closing the road. If the road is eliminated what alternatives exist for the public to maintain access to the area. What will the effects be on the recreational uses of the Forest, including hunting, fishing, huckleberry picking and OHV opportunities. What will be the effects of the road closures on individuals with disabilities. All the above items should be addressed before any road is closed to public use. If this analysis has not been completed the harvest activities should proceed but the road closures

should be subject to a future NEPA analysis. The elimination of road closure activities will also reduce the overall costs of the project and increase the fund available for regeneration activities made necessary by the project.

Response: We agree that the road closure information was difficult to track in the DEIS. For the FEIS, new road closures for watershed restoration and wildlife security have been identified on the Alternative Maps for better display. Appendix D has also been added to the FEIS to clarify what work is proposed, identify existing access and final access should the alternative be selected (open, gated, barriered, or impassable) as well as the "certainty" of this occurring under each alternative.

Additionally, more detailed discussions on the likely effects of these closures on recreational use have been added under Chapter III - Recreation for each project area. Environmental concerns related to these roads are further discussed in both the watershed and wildlife sections of the FEIS.

Access... By opening up these [old growth] areas we are concerned that ORV incursions will increase with subsequent adverse effects to these fragile sites. (Noxious weed introductions and compaction problems etc.) We urge the Forest Service to address the access question and take measures to eliminate potential problems.

Response: No new roads are proposed to be built into old growth areas that would encourage increased use. Most of the old growth units proposed for harvest are also too steep for ORV use (all but 21 acres require helicopter or skyline yarding systems). Additional measures, such as slash disposal methods which leave the limbs and tops on site and then underburn, would also help prevent ORV use (many larger pieces are not consumed by the cool fire of an underburn and help restrict access). Potential effects are further discussed in Chapter III under Noxious Weeds, Recreation, and Soils.

In the EIS summary, Tables S-4 and S-8 indicate that road access will "improve" under Alternative D. This is a very subjective term and needs to be clearly defined. It is obvious that reconstruction or new roads will make access easier for normal street legal vehicles. However, whether this is an improvement or not is subject to interpretation. Improvement of a road that currently provides for more primitive access with 4-wheel drive or high-clearance vehicles may, in fact, result in the reduction or loss of these opportunities. Closure of roads currently being used by the public will also be a loss of existing opportunities. All of this needs to be analyzed in the EIS.

Response: We agree that saying road access would improve is a subjective term and this has been removed from the summary table. Effects of the alternatives on road access are now better addressed in Chapter III of the FEIS in the "Recreation/Access" sections.

ROAD CLOSURES (Newport District)

We are somewhat confused however as to what specific roads are being closed [on the Newport District] and what specific reconstruction activities are taking place? We would expect these answers to be provided in the FEIS.

Response: Please refer to Appendix D which provides a list of all roads, their current condition, access status and proposed treatment.

ROAD OBLITERATION

Similar Comments There were five people who commented on road obliteration. Four were in support of road obliteration and some of those called for all roads to be obliterated.

Individual Comments

I don't see great benefit in the removal of 67 miles of road with the salvage money when the plan calls for construction of 65 miles of new road plus reconstruction of another 132 miles.

Response: Just under four (3.9) miles of new road are now proposed for construction under Alternative D only on the Coeur d'Alene Ranger District. Of the roads that would be reconstructed, most are currently closed to motorized vehicles and would remain that way upon completion of the project. "Reconstruction" on most of these roads would consist of repair work to fix problems that are harming watersheds. Some reconstruction would be to make some of these roads passable and safe for logging trucks and other vehicles during the life of the project. Please refer to appendix D for a list of all roads, their current condition, access status and proposed treatment.

I would like to see "obliterated" roads to be still passable to foot traffic. I know this is difficult given the proliferation of 4-wheelers and such, but as a hiker, berry picker, and hunter, more trails mean more access.

Response: Please refer to the "Explanation of Terminology" card that accompanies the FEIS for definitions of "obliteration." Some obliteration, such as "Front End Obliteration" only recontours the first several hundred feet of a road prism to prevent motorized traffic from entering. Appendix D provides a list of all roads proposed to be treated in this project.

There are some areas where foot traffic (as well as motorized traffic) would be discouraged and the obliteration would include placing slash on the recontoured slope to prevent use. Jim Creek on Hayden Lake is one such area because it would access a high integrity area for wildlife and motorized use reduces security. Other areas would not necessarily discourage foot traffic.

If an actual trail is desired in place of the obliterated road, it would have to be designed with erosion control features and would require routine maintenance. Typically, the budget for trail maintenance is very limited and adding trails to the system would place a further drain on the budget. Lack of maintenance can then cause increased erosion, which is usually the reason the roads are proposed for obliteration to begin with.

At III-5 the DEIS proposes "front end obliteration" where some culverts would be left on stretches of road behind what would be obliterated (inaccessible to motorized access) portions. While this is important for protecting wildlife security, we are concerned that this is still a partial measure. Once an energetic hunter, hiker, trapper, or poacher reaches a stretch of still intact road, the security will have been breached. Furthermore, we are concerned since this will lead to complete lack of maintenance of the road in the areas inaccessible to motorized travel. For example, culverts eventually plug, no matter how good the design, and thus are merely "time bombs" waiting to go off in fish habitat. In short, all road/creek crossings should be fully obliterated.

Response: All roads that are proposed for front end obliteration in this project would have stream crossings made "inert". Options for doing this include removing culverts, armoring culverts, designing fords, and providing overflows.

The DEIS at II-19 says temporary roads would be obliterated in the same season as they're built, "where feasible" but this is an empty promise. If they must be "conditioned for overwinter" then both the costs would be higher than projected and the watershed impacts would be greater (since DEIS analysis assumes few impacts of temporary roads, and "conditioning" would probably provide marginal protection anyway). If you can't absolutely commit to obliterating them the same season--a dry season--then the DEIS should simply analyze them as permanent roads. The DEIS at II-23 is even less committed to same-season obliteration, and resigns actions to mitigate inevitable damage from overwintering. The problems with temporary road specifications are quite serious. Whereas the hydrology and fisheries analyses in the DEIS assume that temporary roads would be less damaging to watersheds over the short term than permanent, system roads, page II-23 of the DEIS indicates that temporary roads will be just as damaging and probably in some cases more damaging than system roads.

Response: The analyses do <u>not</u> assume that temporary roads are less damaging in the short term. It assumes that they are less damaging only in the long term since they should be removed after they have served the purchaser's purpose (Timber Sale Contract Provision BT6.62). The sediment and peak flow analyses treated temporary roads as if they had remained in place for up to five years.

The intent of every alternative that proposes temporary roads is that they should be removed during the same season that they were constructed. At times that is not practical. In any case, if stream crossings remain over winter, those crossings must be designed to safely pass stream flows including debris. Temporary roads would be constructed and managed with the same BMP requirements as permanent roads. Since temporary roads are not subject to the same rigor of design and analysis as specified roads, in this project they would be located according to a criterion that places them on non-sensitive landtypes, gentle slopes, and away from water bodies.

ROAD OBLITERATION (Coeur d'Alene River District)

Individual Comments
Removal of 20.6 miles of roads is a plus, but does this include removal of the temporary roads constructed? What does road removal mean? Will the corrective action be to return the area to the original slope? What kind of a time frame will be expected in road removal of temporary roads? Hopefully this will be a minimum because of the negative effect on the fisheries habitat.

Response: The road removal miles do not include removal of the temporary roads. Please refer to Chapter II Design Features common to All Action Alternatives for a discussion on how long temporary roads would be in place. If temporary roads must overwinter before being obliterated, the timber sale contract has provisions in place to minimize risk to watersheds.

ROAD OBLITERATION (Priest Lake District)

Individual Comments
The preferred alternative will do a good job of reducing road mileage in the Lakeface watersheds, but restores stream crossings and maintains a riparian road in Fedar Creek (tributary to Granite Creek). Sediment input from roads in the Fedar Creek and other Granite Creek tributary watersheds have impacted Granite Creek and reduced its productivity of westslope cutthroat and bull trout. We recommend more emphasis be put on eliminating or treating problem roads in the Granite Creek watershed.

Response: Only the portion of the Fedar Creek roads which cross the stream are within the riparian area. The proposed redesign of the stream crossings in Fedar Creek would result in substantial reductions of risk (estimated 9.9 tons per year decrease) from mass sediment delivery to Granite Creek and would remove two fish barriers (see Chapter III Watershed discussion for further details). The Kalispell-Granite Bear Management Access Plan implementation resulted in substantial restoration of slope and stream hydrology in Packer, Dusty, and Blacktail Creeks which are other tributaries within Granite Creek that fall within the geographic scope of the beetle project. The restoration projects proposed in the beetle analysis complement this effort.

All the roads were mapped in the Lakeface-Granite analysis area. The roads to be used for the proposed activities were ground reviewed to identify possible maintenance needs, reconstruction work, and removal opportunities. Additional roads were identified for obliteration and identified as opportunities if they were not used to access a proposed unit. Within the Fedar Creek drainage, Spur 638, a portion of Road 1340, and Road 1347a would be obliterated as shown in Appendix D. On the Fedar Creek Road 1340, culverts would be enlarged and additional relief culverts installed to improve these drainage facilities.

We concur with the proposed riparian road obliterations in the Upper and Lower West Branch watersheds, and expect that the treatments will benefit westslope cutthroat trout over the long term. We also believe removal of crossings which currently receive little or no maintenance will provide long term benefits despite some potential short term impacts. We remain concerned that sediment delivery from the extensive amount of reconstruction proposed will continue to impair stream habitat unless extraordinary measures are taken to control sediment production from these sites. Many of the

roads proposed for reconstruction include numerous stream crossings, and/or closely follow stream corridors. We are concerned that if the roads are retained on the landscape following sale activities without adequate road maintenance budgets they will become long term sediment sources. We suggest permanent closures, including pulling of culverts, on as many roads as possible. We also recommend BMP's including slash filter windrows, frequent cross drainage, mulch, straw bales, and/or silt fencing to control sediment from disturbance associated with road reconstruction.

Response: The amount of sediment generated during reconstruction and removal of stream crossings would be minimal and would only affect localized stream reaches. Most of the road reconstruction work is greater than 300 feet from live streams and would result in better cross drainage and hardened road tread (gravel--as needed) and should reduce long-term sediment production and delivery. Limited road maintenance budgets is a reality that was considered by the interdisciplinary teams which evaluated the long term transportation needs. We expect that standard and site specific BMPs rather than extraordinary BMPs would be all that are needed to protect water quality.

The proposed road reconstruction work also is designed to improve watershed conditions. We reviewed each road for improvement needs that would be used as part of the timber sale. Upgrading and replacing culverts, installing relief culverts, gravelling, and grass seeding are such examples of reconstruction work that would improve watershed health. As part of the review, roads which exist as sediment sources or pose a high risk to be a sediment source were considered for obliteration

The Best Management Practices (BMPs) which you recommended are included as a Feature Common to all Action Alternatives. Other planned BMPs include rolling dips, armored ditches where surface erosion potential is high, and surface water deflectors or opentops on steep stretches of road.

ROAD DENSITY

Individual Comments
We are also concerned about the number of roads and stream crossings that are in serious need of attention.

Response: We are also concerned about the number of roads and stream crossings in need of attention. That is why part of the restoration work we have proposed focuses on obliterating specified roads and removing or repairing stream crossings where needed.

Constructing additional roads within a highly roaded watershed is contrary to standards contained in the ICBEMP draft Environmental Impact Statement (EIS). The standards in the draft EIS require the reduction of road densities in watersheds that exceed 1.7 miles/square mile, and stipulate that roads and landings should be located outside of RHCAs.

Response: We do not use standards from the ICBEMP Draft EIS because there is no decision issued on that document. The draft also does not dictate that no new roads be built. It does say that road densities should trend downward towards the 1.7 mile/square mile. The range of alternatives developed in the Douglas-fir Beetle EIS shows a reduction in open road densities for all three districts.

ROAD DENSITY (Priest Lake District)

Individual Comments
The Selkirk-Priest Basin Association believes the admonitions contained in the ICBEMP literature as well as a veritable library of research related to road impacts, clearly point to the number 1 priority to re-establishing ecosystem "health"...dramatically reduce the road density in our National Forests. The research is voluminous. The recently released (draft) SOURCE HABITATS FOR TERRESTRIAL VERTEBRATES OF FOCUS IN THE INTERIOR COLUMBIA BASIN. BROAD SCALE TRENDS AND MANAGEMENT IMPLICATIONS repeatedly stresses the need for managers to reduce road density on the public's forests...We would like to point out that the Analysis Area is characterized by not high, but very high densities of roads... The "Watershed Opportunities-Summary Report" forms

clearly identify a multitude of roads on the Priest Lake Ranger District that are having significant detrimental impacts on the forest environment. SPBA believes much more could and should have been done to rectify the problem of extremely high road densities in the Project Area. We are hopeful this will be corrected in the Final EIS. While we are encouraged that the Priest Lake Ranger District is not proposing any new system roads, we are nevertheless discouraged that more was not done to address the existing high density of roads on this district.

Response: We agree that there is a high density of roads in many areas of the forests, and in some drainages on the Priest Lake Ranger District. For those analysis areas included in the project, all the roads were mapped. The roads to be used for the proposed activities were ground reviewed to identify possible maintenance needs, reconstruction work, or removal opportunities following the activities. Additional roads were identified for obliteration and identified as opportunities if they were not used to access a proposed unit. Monies generated from the sale of the timber could be used for this road obliteration with possibly supplemented dollars from appropriated or other funding sources.

Over the past few years, the Priest Lake Ranger District has been working to reduce the density of roads. An example is the Kalispell-Granite Access Management project which reduced road densities in the Kalispell-Granite Bear Management Unit. Though these roads were obliterated, many of them still show on maps of the areas and have been calculated into total road density because they are still discernible on aerial photos. This needs to be corrected, or explained, as the road density figure does not represent the actual density on the ground. This also is true of areas included within the analysis areas for this project. As stated above, the opportunities to reduce road density in each analysis area were identified as part of this proposal. Consult Appendix D and the project file for a listing of these roads.

ROAD MAINTENANCE

Individual Comments

Transportation system maintenance funds have not been adequate for taking care of your existing facilities. You have not reliable assurance that such funding will ever be adequate, either for the existing system or for any future additions to it. Don't make a bad situation worse by building more roads which can't be properly constructed and maintained.

It is illogical to add additional road miles to a system that is currently undermaintained. What percent of the new roads will be maintained under each alternative?

Response (to the previous two comments): The majority of new roads being proposed under all alternatives are temporary roads and would be obliterated after use. Alternative D (on the Coeur d'Alene District only) proposes 3.9 miles of new system road. All temporary and permanent roads would be maintained by the purchaser through the timber sale contract. The Coeur d'Alene District is currently developing an access management plan which would put all system roads on a rotation for routine maintenance.

In addition to our suggestions regarding road densities and locations, replacing inadequately sized culverts at current stream crossings with larger culverts (sized to accommodate high flow events) or bridges will further aid in restoring the functionality of these drainages.

Response: We fully agree. The driving watershed restoration elements that are proposed in this project address the ability of crossings to safely pass large floods, including debris and sediment, without excessive risks to streams and aquatic habitats. Resizing and removing culverts and redesigning crossings are some of the ways we are accomplishing this.

This much logging will be hard on our highways.

Response: Timber sales contribute 25% of the revenue generated to counties in which the sales occurred to be applied to roads and schools. The funding allocated for roads is intended to aid in the maintenance

of roads which could be impacted by the timber sales. In addition, log trucks are regulated by the same load restrictions as other highway trucks.

ROAD MAINTENANCE (Coeur d'Alene River District)

Individual Comments

The DEIS on the following pages of Chapter 3 states that "...few of the existing road channel crossings currently receive regular maintenance." Pages III-84, 89, 93, 97, 100, 104, 107 111, 115, 120, and 127. There is no mention of road maintenance for the Beaver Creek Watersheds on pages III-123 and III-124.

Response: Beaver Creek has the same maintenance schedule as the rest of the drainages listed. The omission was an oversight.

The Coeur d'Alene River Ranger District currently is in violation of Idaho Code due to the failure to maintain culverts within the drainages in each of the 6 Areas proposed for logging. The Final EIS must list the dollar amount of funding needed to fully maintain the roads in each of the Analysis Areas. There is no data or analysis in the DEIS that indicates the proposed logging will in fact pay for required road maintenance.

Response: It is unclear what Idaho Code is being referred to. Funding for road maintenance is allocated through Appropriation Bills each year by Congress and is outside the scope of this analysis.

There are data on road maintenance in the draft and final EISs under the Finances section in Chapter III. A line item shows the cost to the purchaser for maintenance work on the roads used to implement the timber sale. This maintenance is required in the timber sale contract, and is administered either by the timber sale administrator or engineer.

ROAD MAINTENANCE (Priest Lake District)

Individual Comments

We were unable to locate in the DEIS, Chapter 3, Hydrology, a discussion of the current road maintenance status for each of the Analysis Areas. Are all of the roads and culverts being maintained in each Analysis Area? The FEIS needs to indicate what percent of the roads are being fully maintained, and the Areas where the roads are not being fully maintained, in relation to new road construction being proposed. Information and analysis regarding the full extent of past Forest Service logging and road building in the cumulative effects areas was not supplied in the DEIS.

Response: As stated in the EIS, the level of road maintenance has decreased the past few years because of reduced road maintenance budgets. At the same time, these dollars have fluctuated because of supplementary funding sources such as flood damage and 10 Percent Funds. Because of these varying dollars, the mileage which is maintained also has varied over the past few years. On the Priest Lake Ranger District, there are approximately 1,400 miles of system roads. As an average over the past few years, approximately 300 miles have been fully maintained.

Not all roads and culverts are maintained annually. Which roads are annually maintained depends on the Maintenance Level established for the road and the relative need. High-use roads such as the Nordman-Metaline Falls Road are maintained annually on a more regular basis than roads which do not receive much use. Several roads cross the boundaries of the analysis areas designated in the EIS. Also, special maintenance projects such as brushing may be done on roads scattered around the District. Therefore, it is difficult to portray an accurate figure to represent what percentage of roads are fully maintained annually, and which are not, per each analysis area.

The cumulative effects of past logging and road building were included in the cumulative effects analysis as discussed in Chapter III for the various resources such as watershed, soils, and wildlife. The information which was used in the analysis is included in the project file.

By your own admission you don't have adequate funds to maintain existing roads and the amount planned to decrease is insignificant. In the LWB I noticed a redundancy of roads to the same project area and connectivity of roads which would encourage more traffic, increasing the spread of weeds and possibility of man caused fires. This increase in traffic creates a need for more maintenance which you can't pay for, and more sediment, which cannot be tolerated. All too often I see gates installed on these reconstructed roads not employed to stem the access.

Response: The previous response addresses the portion of this comment concerning road maintenance.

The number of roads which would be removed for each alternative is displayed in Chapter II. For the Priest Lake Ranger District, this mileage would exceed 50 miles for each action alternative except Alternative F, which would remove 34 miles.

There are many roads in the Lower West Branch of the Priest River showing on the map regardless of whether they are gated, impassable, brushed in, or open. Additionally, some old skid trails and firelines also were displayed on the DEIS maps. Because all these features were included, the density and connectivity of open roads is not portrayed correctly. Some of these features such as skid trails and firelines, however, were removed from the maps for the FEIS to portray the existing condition more accurately.

Any road reconstruction or temporary road construction was reviewed on the ground to validate the need for the road and to develop design criteria which would reduce any increase in sediment or effects to other resources. There would not be increased access resulting from the proposed temporary road construction. These roads would be obliterated following their use as described in Chapter II, and would require no gate closure.

There are various reasons why gates have been installed on system roads. Some system roads are closed seasonally to avoid surface damage during the wet season of the year or for wildlife, including Threatened and Endangered species and security.

Social Considerations

Individual Comments

If your FEIS and ROD include cutting of trees within 100 feet of any BPA powerline, please contact me.

Response: There are proposed units near the BPA powerline on the Coeur d'Alene River District. As has been done with other similar projects, we will notify your agency of these locations and ensure that there will be no impact to the powerlines.

We are very concerned about the impact of 30,000 logging trucks traveling in and out of the forest....

Response: The proposed activities would result in additional traffic on forest roads, however this would not equate to 30,000 trucks. There would be many loads of logs hauled by the same trucks. The hauling would occur on a number of roads over a period extending several months from the summer of 1999 to the fall of 2001. Similar volumes of logging trucks have been common on several of these roads in the past. Warning signs are placed in sale areas concerning logging operations and traffic. Other timber sale provisions would also be incorporated such as dust control and road grading.

Soils

GENERAL COMMENTS

One general comment was received concerning the effects of logging on the soil resource.

Response: The FEIS has analyzed these effects, and displayed them in Chapter III.

Individual Comments
Although the CNF commits to soils impacts monitoring, the IPNF does not, even though supposedly the Forest Service Handbook on soils and water quality--adopted into the Forest Plan--requires such monitoring. But the lack of authentic soils analyses is a major oversight. How has site productivity been affected in the past and how significantly will it be affected by this project? How does the DEIS evaluate the likelihood of mass wasting, using soil and land types? The soils section has no site-specific information. There is no quantification of existing condition within proposed units or any impacts analysis of detrimental soil conditions, site class, or nutrient flow. How does the Forest intend to analyze this key issue, considering the loss of productivity that will result from the clearcutting and near-clearcutting that is planned? Is the decay rate of woody debris less, more or about equal to the accumulated fuel buildup for the sites in the project area? Please provide a discussion and documentation of your analysis of this critical site productivity question.

Response: Site productivity including key criteria, existing condition, effects and mitigation measures are covered in Chapters II and III of the FEIS.

The Idaho Panhandle National Forests lands have been mapped based on local geomorphology, hydrology, vegetation and soil characteristics. These mapped units are known as landtypes. Landtypes are designed to address physical responses to forest practices, including roads, logging, and fire. A subset of the mapped landtypes in these project areas have been identified as being sensitive in terms of mass erosion and delivery of material to streams. Each watershed or analysis area is characterized by the proportion (percent) of the drainage area that is composed of sensitive landtypes. The IPNF landtype association mapping also was projected into the Newport beetle project area, so that a seamless coverage for watershed analysis could be attained. Concerns with soil compaction and potassium limited soils prompted the Newport District to not propose any grapple piling as fuels treatment (only underburning or "lop and scatter").

The decay rate of woody debris is less than the accumulated fuels buildup. Moisture is the key factor in decay rates. Northern Idaho and northeastern Washington are relatively dry in the surface soil and duff layer during the middle and late summer period when soil temperatures are highest. Due to the lack of sustained moist soils during the mid- and late-summer, the decomposition rates are slowed.

Individual Comments
The FEIS needs to disclose the effects on soil disturbance, soil compaction, erosion and siltation from fireline construction that will exacerbate the effects on soils and hydrology from fuelbreak construction.

Response: Firelines are included in what we term detrimental soil displacement. We include firelines as part of our monitoring of the effects of harvesting. The displacement of surface organics and surface soil in fireline construction was included in the analysis of detrimentally disturbed soil in the FEIS.

Whole-tree yarding is destructive to the soil resource. The evidence is clear, compelling and abundant. As just two examples: "...the removal of needles and branches in whole-tree harvesting operations will likely have a negative impact on soil nutrients and long-term soil productivity." Without knowing the exact amount of material to be logged from "salvage" units with a "tops yarded' prescription, it is difficult to project the percentage of site nutrients removed during the operation. What is relevant however is the trees to be removed (Douglas fir) are often described as "nutrient hogs" and presumably contain a significant percentage of site nutrients in their tops and branches. For instance, 'about 45% of available potassium in an ecosystem is carried in the trees versus the soil.' (see... Potassium and Our Forests,

University of Idaho Cooperative Extension System, 1/19/1999) If potassium is already limited on a given site, then removal of more K in any quantity would be ill-advised. Without adequate analysis the appropriateness of yarding methods or fuel treatments would presumably be difficult to ascertain. The effects of grapple-piling can be similarly destructive. While (some) site nutrients may not be completely removed they are concentrated in small areas and/or volatilized. Without knowing the current nutrient status, such fuels and yarding prescriptions seem premature. SPBA believes "tops attached" and grapple piling prescriptions are not advisable where site nutrient status has not been determined.

Response: The potassium (K) issue was analyzed in all alternatives and mitigation was proposed to minimize the loss of K from these sites. This information is contained in Chapters II and III of the FEIS.

Nowhere in the draft EIS is there a detailed discussion of the soil resource. Despite being the substrate for everything in the forest environment, this critical component is virtually ignored in the project discussion. Information about soil types, nutrient status, organic composition, soil wood, and a detailed disturbance history for impacted areas is wholly lacking. The effects of yarding methods, fuel treatments, and site preparations on affected soils are also virtually ignored. Nowhere in the discussion do we see any mention of the possibility that past fire and/or logging events may have influenced the intensity or pattern of the current bark beetle outbreak through alteration of nutrient availability, organics depletion, or other impacts to area soils. It is also well known, for instance, that root diseases often correlate with nutrient poor or detrimentally impacted soils and beetle outbreaks often start or gravitate to root disease centers. (see... ARMILLARIA ROOT DISEASE, USDA Forest Service, Handbook No. 691)

Response: The soils resource, including existing conditions, is discussed in Chapters II and III of the FEIS. See the Beetle responses in relation to fire influence on Douglas-fir beetle outbreaks.

Some very preliminary research being done by the Intermountain Forest Tree Nutrition Cooperative is showing a possible link between potassium deficiency and the lack of tree resistance to root disease. It is also known that root diseases correlate with nutrient-poor sites. Another big factor on these soils is the shift that has occurred in species composition from western white pine and larch to Douglas-fir and grand fir. The white pine and larch require less nutrients such as potassium. With this project, we would like to trend back to the longer-lived seral species such as white pine and larch.

Information gleaned from the soil analysis would (or should) obviously affect yarding prescriptions, fuel treatments, site preparation and residual organics and LWD specifications. Indeed, we would argue that such determinations cannot possibly be made without adequate soils information preceding. Nevertheless, the Forest Service has proposed activities such as whole tree yarding which will remove site nutrients or grapple piling which will concentrate and/or volatilize site nutrients thus (potentially) "irreversibly damaging" area soils and "accelerating undesirable trends" by stressing the remaining stands and making residual trees or regeneration stands less vigorous and subject to further insect and disease occurrences... Several studies have shown that nearly half of the site nutrient capital (such as potassium) is contained in existing trees' foliage and small branches. To remove a significant percentage of site nutrients by yarding tops etc. without knowing (or even IF knowing) the current nutrient status of the stand is, in our opinion, unwise. Furthermore, the agency cannot ameliorate present fire hazards by creating stands that will (owing to soil impacts) be even more subject to insect and disease events in the future. This kind of action only exacerbates and prolongs the danger to forest resources and human values. Consequently, SPBA maintains that the Forest Service should undertake appropriate soil surveys and conduct adequate foliar analysis to determine current soil status and possible contributory mechanisms of the current outbreak before recommending yarding methods, fuel treatments, or site prep prescriptions. Such information would also influence LWD and organics guidelines, especially if rehabilitative quantities of material are needed rather than current specifications which only are sufficient for maintenance of site productivity.

Removing large quantities of trees and other biomass robs the forest of the nutrients it needs to restore itself.

Response (to the previous two comments): The potassium (K) and large woody debris issues are covered in the mitigation measures outlined in the Features Common to All Action Alternatives section of Chapter II and in the Affected Environment section in Chapter III. The potassium issue is analyzed for each alternative in the Environmental Consequences section of Chapter III in the FEIS.

An Order 3 soil survey, which is a planning level survey, is 95 percent complete on the IPNF and is complete on the Colville National Forest. An Order 3 survey is what is commonly done by the NRCS and the Forest Service: both surveys follow National Cooperative Soil Survey standards. The IPNF survey is presently in draft form and is commonly referred to as a landtype survey.

If funding can be obtained, the IPNF is planning to do foliar analysis in cooperation with the Intermountain Tree Nutrition Cooperative this fall in order to gather more information on our K levels.

SOIL COMPACTION

Individual Comments
Logging using heavy equipment will likely destroy the chance for a good morel harvest by compacting the soil.

Response: Random dispersed tractor logging would not be done in this project. Tractor logging would use designated skid trails and roads only. The total area disturbed would be 20 percent or less of an activity area (harvest unit). This is consistent with forest plan standards.

SOIL EROSION

Similar Comments There were three similar comments stating concerns about erosion created by roads, harvest activities and loss of vegetation.

Response: A primary focus of this project is to reduce many of the sources of sediment and potential failure hazards. The project focuses on stream crossings, roads that encroach on the stream courses, and roads that are at risk of failing over time. New proposed roads largely are ridge roads which have low landslide potential. The vegetation restoration side of the project (the logging and access routes) would adhere to stringent Forest Service management requirements and Best Management Practices to prevent any substantial sediment and failure sources from being created.

One of the key decision criteria for this project is to promote a net improvement in watershed condition and water quality. This does not mean simply a balance between new sources and rehabilitated sources. What it does mean is that sources and volumes of sediment following the project should be substantially less than before the project was implemented.

Individual Comments
It would seem to me that even trees that are infested would be better left standing as homes for small birds, and those trees that fall would help hold soil in place to prevent runoff.

Response: Adequate standing and down trees, which would meet both wildlife and soil needs as recommended by research, are incorporated as a Feature Common to All Action Alternatives.

Timber Sales

HELICOPTER LOGGING

Similar Comments: A large number of commentors advocated the use of helicopters for the project. This included 11 individual commentors and four different form letters containing a total of 100 signatures. The primary reasons they advocated helicopters were that no road construction would be necessary, ground

disturbance would be minimized, they would cause less visual impact, and they would result in less effect to watersheds. Several of these commentors also stated that helicopter logging would be much faster. One of the commentors also stated that adequate thermal and escape cover would be maintained for all animals. Two of the letters, including one of the form letters, mentioned skyline and low-pressure ground equipment as being environmentally sensitive.

Response: We recognize that helicopter logging is a good system to use in such areas as critical viewsheds or sensitive watersheds. Road construction can be avoided in areas of sensitive landtypes. Each proposed unit was ground-reviewed to recommend the stand treatment options as well as a proposed logging system. Existing roads were an important consideration in choosing the type of harvest equipment as well as other site factors including sensitive soils, stream locations, and visuals. Another important factor in the selection is economics. The units specified to be logged by helicopter are shown in Appendix D of the FEIS.

Individual Comments
The summary DEIS did not indicate the extent of the helicopter logging expected. A percentage summary in the Summary FEIS would be appreciated.

Response: The FEIS contains a summary table in Appendix D showing the approximate acres treated by various logging systems for each alternative.

OTHER LOGGING SYSTEMS

Similar Comments: There were 47 individual commentors who stated that conventional logging should be used. The majority of these comments advocated conventional systems because of their lower costs compared to helicopter logging. Systems such as tractor, cable, cut-to-length, and skyline systems all were suggested. Commentors said more dollars would be available for watershed restoration, road improvements, and silvicultural work. Some said fuel treatments and future firefighting efforts would be accomplished better with conventional systems. Others said local timber companies and local loggers would benefit by the use of such systems. One letter stated that helicopter logging should be reduced to ensure that the infected trees are removed.

Response: Each treatment area was ground-verified with the extent of the beetle infestation mapped. Other features also were reviewed such as existing roads, site factors such as slope and landtype, species composition and stand treatment options, and presence of streams. Based on these field reviews, logging systems and other design criteria such as operating season were recommended for each proposed unit. Environmental conditions are usually the primary factors in deciding the type of logging systems. Other important factors may include economics, road locations and equipment availability. Appendix D lists the logging systems by unit for each alternative.

Salvage logging should be done on frozen, snow-covered ground to minimize soil and ground cover disruption. This will also help to minimize the spread of weeds.

Response: Winter logging can be effective in reducing impacts to soils and reducing noxious weed spread. We included this recommendation in the soils section of Features Common to All Action Alternatives in Chapter II of the FEIS, though no units were specified. The practice is also recommended in the Priest Lake Noxious Weed Control Project FEIS, the Coeur d'Alene River Ranger District Noxious Weed Draft EIS, and the Colville National Forest Integrated Noxious Weed Treatment EA.

Variable snow conditions and the high cost of snowplowing preclude the use of winter logging in many areas. Logging systems such as helicopter and skyline also can reduce the impacts to soils and noxious weeds.

LOGGING METHODS (Coeur d'Alene River District)

Individual Comments

We have reviewed the maps of Alternative D and without knowledge of the areas, we question many of the logging proposals based upon the criteria and statements that we have made above. In almost all cases, the intent is to reduce the number of acres to be logged with helicopter and do the same job with a cheaper system that will allow you to meet the other objectives which are paramount to this project. This is by no means a complete list of the proposals one might take:
Unit #163-Road right through the middle of the unit. Could be some cat and cable skidding.
Unit #268-There is an existing old road (coming from the maintained road) that could be opened up (if not already) where we could cat and cable most of the unit.
Units #146 and 147-Could easily cable or cat log most of the unit. Right now it calls for uphill helicopter logging.
Units #264 and 153-If #308 is cat logging, we can do the same for [these two units]. Might be longer skids, but it be much cheaper. Also could provide some access on flatter ground where there is little erosion potential.
Unit #161-Roads go right through it. Could be a lot of cat and cable.
Units #313, 141 and 314 could all be tractor skidded to the existing road on the bottom of the unit. Might have to make boundary change to road or along skid trails, but could be done easily.
Units #139 and 140. Both units very flat. Could cat log much of these. Could be longer skids to existing road, but much cheaper and can handle brush.
Unit #270-If units 184 and 319 are cable units, there is no reason that 270 couldn't be a cable unit. Unit #185 has roads running right through it. Most of unit could be yarded with a cable. Portions might have to be helicoptered, but cable would do most.
Unit #231-Flat and RR grade. Most can be cat logged.
Unit #230-Existing road enters on the East from Sec 32. Can cable yard off this road. Look for other opportunities to access RR grade.
Unit #13-Extend road from #230. Skyline unit as much as possible.
Unit #224-Extend road out ridge from #406 and maximize skyline ground.
Unit #221-Extend spur off ridge to maximize skyline ground. Look at putting helicopter landing on east side of Section 22 for unit #221.
Unit #171-Tractor ridge above 1552A road.
Unit #22-This area was already cat logged under ice storm. Adjacent to IFI ground which was also cat logged. Why are we helicoptering it now? Roads and trails all in.
Units #27, 28, 29, 188, 189, 238, 31-(Mokins-Jim-Yellowbanks Area) Why so much helicopter. There are existing roads to almost all these units.
Unit #240-Build spur off of 3090 road. Could then tractor and skyline the whole unit.
Units #37, 38, 39, 43, 44- (Hayden Lake Units) Find landing areas along lower roads. All this uphill flying is too expensive. There are existing roads on FS on the bottom. Build a couple of landings.

Response: The Interdisciplinary Team reviewed your comments regarding specific units and logging systems. Based on your remarks, changes were made between the DEIS and FEIS to open more old roads and use conventional logging systems for some of these units.

We have reviewed your maps, particularly in the CDA area, and would make the following general statements about the proposed areas and activities:

1. We need to reduce the number of helicopter units. We recognize the desire to keep roads to a minimum but helicopter logging is almost twice the logging cost of cable or tractor logging. You are probably looking at a minimum of $350/MBF for logging cost alone for helicopter.

2. We have to reduce the amount of the requirement of keeping tops attached on helicopter logging to a minimum. Flying tops attached increases the skidding costs by 20-40%. This can easily be an additional $70-$100/MBF. If there is any minimum stumpage or slash payments involved with helicopter logging with tops attached, the units involved will most likely never sell in today's markets. You might be looking at a minimum of $550-$600/MBF log. This is the basic problem with helicopter logging. It is too expensive a yarding system to attempt to reduce the slash problems...

Helicopter logging will usually only increase the threat of wildfire because of the expense of handling slash. Possible solution: Do not try to reduce slash on helicopter areas to the full units. Handle only that slash within 50 feet of the boundaries (fuel break) and possibly wider on boundaries adjacent to private lands. This fuel break, with a possible hand fire line should be fairly effective of keeping fires and still keep costs at significantly lower level.

3. Make sure to utilize all logging systems wherever practical. Even if 10% of a helicopter unit can be logged with a tractor, it should be permitted. This would also include cable logging below roads that access some of these units. All this will lower the average logging cost. It is too easy for sale layout people to say that since 70% of a unit might require helicopter, for simplicity sake, they [say] we will just make the whole unit helicopter. A good land manager would not make this mistake.

4. Keep uphill helicopter logging to an absolute minimum. Again this can increase the flying costs by as much as 50-60%. Every effort must be made to find downhill landing sites. If there is a road at the top of the unit, there should be no problem taking a skyline machine reach below that road. This should reduce the amount of helicopter significantly in that unit.

5. Temporary roads should be considered, particularly where the roads are high on the hill side. We can always close these roads afterwards. If we are then able to tractor skid above the road, or even take a skyline length below the road, the cost justification on the road from the savings in the logging systems would be substantially positive.

6. Do not rule out some longer length skids with a tractor or even a cut-to-length system. The long skids is what the cut-to-length system was designed for. It is low impact and we can still treat part of the slash. Again, even if you can take out half the unit on a long skid and just worry about the bottom of the unit with the helicopter, you have achieved two goals; lower costs and a fuel break that is economically feasible with the ground systems.

Response: The response above under "Other Logging Systems" also would respond to your comments (1, (3), and (6). The site conditions of each unit were reviewed including existing roads, stand treatment options, stream locations, etc., to determine the logging system. Considerations in determining the system includes both environmental and economic considerations. We reviewed your comments, and did make changes to the logging system for several units in the EIS. Where tractor or skyline was a reasonable option, they were used instead of helicopter. Appendix D lists the logging systems by unit for each alternative.

Regarding your comment (2) about flying tops out with helicopter, we agree that this fuel treatment method is costly. After further analysis of fuels in the FEIS, yarding with tops attached was dropped from Alternative D on helicopter units further than 1/4 mile from the urban interface boundary. Refer to Chapter III - Fire/Fuels.

We also considered your comment to minimize uphill helicopter yarding (4). Downhill helicopter logging definitely is preferable when landings are available. Sometimes, uphill yarding would be required. Guidelines of the Inland Native Fish Strategy (INFS) do not normally allow building new landings within riparian zones (i.e. RHCAs).

Temporary roads (5) also were considered. The selected alternative builds 29 miles of temporary roads, specifically for the reasons you state in your comment. Building new roads, temporary or permanent, does have some impact on resources, be it short-term or long-term, which are discussed in Chapter III. All units were reviewed by the interdisciplinary team to look at access for logging systems.

In almost every unit we can find portions that could be logged by systems other than helicopter. We just have to be little more creative with the sale layout. The best thing about these other systems is that we can reduce the risk of any fires substantially by handling the slash in an economical manner and could even create some machine fire lines in those areas where they may be desperately needed. With fire being the greatest hazard, this has to be one of our main objectives.

Response: As discussed in the previous response, changes were made in the logging system for several units. Where other logging systems were a reasonable option and would treat the fuels more completely, they were used instead of helicopter. The high cost of yarding tops also was a consideration in changing the logging system when access was available. Chapter III Fire/Fuels includes additional discussion.

Need to tractor and cable as much as possible even if it is only 5-10% of an entire unit. We cut off the tractor skidding at 35% slopes. Would rather tractor skid a 1/2 mile than helicopter. Temporary bridges would be an OK alternative to helicopter yarding.

Response: The response above under "Other Logging Systems" also would respond to this comment. The site conditions of each unit were reviewed including existing roads, site factors, stream locations, etc. to determine the logging system. Considerations in determining the system includes both environmental and economic considerations. Appendix D lists the logging systems by unit for each alternative.

How were the unit boundaries established? Are we constrained to the units shown on the maps? How will the material be sold? Have we considered the size of the marking job?

Response: Unit boundaries for Alternatives B, C, and E were delineated based on field reconnaissance of beetle activity. Boundaries for Alternative F would be the same, but only those areas near the urban interface and private land holdings were included in this alternative. In Alternative D, units were established based on the existing current beetle activity and then expanded to include additional areas where the infestation is projected to spread. Descriptions of the alternatives is included in Chapter II.

Typically, there is a certain amount of change on the ground once field layout begins. Units may be either smaller or larger than indicated on the maps in the EIS. Changes would go through a standard NEPA process to ensure the agency is still within the decision space of this project. As stated in Chapter II, the "acres, miles, other figures and mapped unit boundaries which are used to describe these alternatives are approximations based on the best available information."

Normal timber sale appraisal and bidding procedures would be used for any timber sales. As discussed below in another response, most sales would be sold under the weight scale contract.

Both the size and efficiency of the marking job have been discussed at length. Options would be to designate by tree species or diameter, where appropriate, or to cut/leave tree mark. Several commentors suggested using a "salvage designation," but we are concerned about the costs and problems associated with this type of designation. More discussion of this suggestion is included below in the next section, Sale Specifications.

SALE SPECIFICATIONS

Similar Comments: Four letters were received regarding limited operating periods. One of these letters contained 17 signatures. The commentors did not want any restrictions on the operating period such as specified time of day, day of the week, or seasonal limitations because of such factors as wildlife security. Because the beetle infestation is an emergency, the commentors felt that delays would reduce the value of the timber by increasing logging costs.

Response: We recognize the emergency nature of this project and the need to remove salvaged material from the forest as quickly as possible. However, there would still be some limitations and restrictions required in the timber sale contract that are necessary for safety or to reduce the impacts to other resources during the life of the timber sale contracts. Some of these restrictions are included in the Features Common to all Action Alternatives in Chapter II.

Similar Comments: Five letters were received concerning the method of designating trees to be salvaged. These comments included two form letters with 38 individual signatures. The commentors suggested designating the timber by description in the timber sale contract instead of individual tree marking with paint. Cost savings and changing conditions resulting from the beetle infestation were cited as reasons. The commentors suggested applying the cost savings to additional sale administration.

Response: Thank you for the suggestions. We have considered using a salvage designation to designate the infested trees. The problem, however, is how to define a "dead or dying tree." This type of designation has been used before on other Forests, including the Boise and Payette, and resulted in increased timber sale administration and other related costs. Because there is no "stump" mark put on the trees to be removed, it is impossible to ascertain whether the trees cut were the ones intended to be removed. Where appropriate, we would include species designation for specific units. A final decision, however, would not be made until the sales are implemented. We have been individually marking trees in the area exempted from a stay for an appeal.

Individual Comments
Not opposed to logging, but wondered why we couldn't divide the sales up over a ten year time period.

Response: As discussed in Chapter III of the FEIS, outbreaks of Douglas-fir beetle are normally limited to four years or less. The Douglas-fir trees killed by bark beetles lose their value rapidly, and studies indicate that trees are not salvageable after 2 or 3 years because of wood decay (Evans and Associates 1999). The infested trees need to be harvested as quickly as possible to finance the greatest opportunities for long-term aquatic and vegetation restoration and to provide economic benefits to the local communities. Because of the loss of value through time, extending the sales to ten years would not fully meet the goals of these proposed activities.

I think the timber should be sold per ton and not lump sum cubic as there is a good chance volumes to remove will be adjusted as the Beetle kills are re-assessed.

Response: We appreciate your suggestion. Presently, nearly all sales are currently measured and sold lump-sum, using the cubic system. Weighing by the ton is another method of scaling to determine volume. With the situation of the Douglas-fir beetle infestation, weight scale certainly would be a viable option because these proposed timber sales involve largely dead and dying trees. Moreover, the volume mostly would consist of a single species, Douglas-fir. Other benefits would include reduced Forest Service pre-sale and administration costs, especially if additional infested or dying trees were added to the sale contract. Purchasers also would have good access to scales.

Logging damages healthy trees (leave trees).

Response: Occasionally leave trees are damaged during logging operations. However, timber sale contracts are designed to minimize this occurrence and penalties are established when negligence is involved. A timber sale administrator enforces the contract and ensures appropriate actions are taken when necessary.

The various logging contracts must include requirements that restoration of affected drainages must be addressed as a condition of any timber harvest contract....

Response: The restoration of aquatic and wildlife habitat is a component of the purpose and need as defined in Chapter I. Additional clarification was added to the description of the Proposed Action in Chapter I regarding aquatic and wildlife habitat restoration activities. These activities would include closing or obliterating roads (for watershed health and wildlife security) and modifying roads (by reconstruction) that pose risks to watersheds. Such road work was specifically included and designed to eliminate or reduce adverse effects to streams, fish habitat, fish migration, and/or wildlife and wildlife habitat. As stated in this section, restoration activities would be achieved through the timber sale contract

where activities could be associated with timber sales and along haul routes. Activities not associated with timber sales would be completed with other funding. Appendix D includes all the roads where proposed restoration activities would occur for all alternatives. The table also indicates if a road would be included in the timber sale contract.

If you allow logging on the "selective harvest" there won't be any trees at all.

I do not trust the Forest Service, or the timber industry to take only dead trees.

Response (to the previous two comments): The decision on which trees, if any, would be harvested depends on which alternative is selected. Some alternatives propose removing live green trees in addition to the dead, and the alternatives vary in the amount of dead and live trees that would be removed. When trees are designated for harvest with selective harvest prescriptions, the Forest Service marks them with paint or otherwise designates them. The contract specifies that only these designated trees would be removed. A timber sale administrator enforces the contract, and ensures that only the designated trees are removed.

GENERAL COMMENTS ON TIMBER SALES

Similar Comments: Four comments were received advising that unit and project boundaries be expanded large enough to encompass the future spread of the beetle infestation. These comments pointed out that additional trees would be infested in addition to the trees currently killed.

Response: The Proposed Action (Alternative B) was designed to treat only those units identified in 1998 as being infested by the Douglas-fir beetle. As discussed in Chapter II, Alternative D was developed to address the concern of treating acres where the beetle infestation would likely spread (in IPNF areas only--the Newport District is only treating currently infested stands). High hazard stands where the beetle could spread were identified through field reconnaissance and data base analysis. These additional stands currently have no known beetle-hit trees, but would be treated should they become infested. If the beetle spreads to other stands outside the analysis areas, additional NEPA analysis would be completed.

Our principal concern is that this project may just be the first of many harvesting efforts to utilize timber damaged by bark beetles over an area of nearly 27,000 acres. Harvesting over such an enormous area could be far more intrusion than is sustainable by the ecosystem: especially in light of the timber sales and other projects already planned for the area. We think it would be a mistake to conduct projects like this one piece meal. It is important to develop a comprehensive plan for dealing with beetle damaged timber. A plan that substitutes beetle damaged timber for other planned sales, minimizes construction of roads, maximizes obliteration of roads and other restoration activities, and minimizes overall intrusion into the ecosystem. Optimally, such a plan would be developed even before this project gets underway, but certainly before any future projects to harvest the beetle damaged timber. For the current project, we think the EIS should at least identify timber sales that will not need to go forward in light of the timber from this project.

Response: The FEIS considers all the activities which would occur in the subbasins included in the proposal in its analysis of effects. This project does take a hard look at all existing and reasonably foreseeable projects. The Reasonably Foreseeable Actions on both National Forest and other lands are all listed in Appendix E of the document. Those projects that do not currently have a decision also must go through the NEPA process, which would include a cumulative effects assessment.

It is possible that some proposed vegetative treatment or rehabilitation projects on the Forest(s) may be postponed or delayed because of the high priority of this Douglas-fir beetle infestation and the identified aquatic restoration projects. However, it would be premature to identify timber sales or other activities that would not proceed prior to publication of this FEIS and before a decision has been made.

We do not feel that timber sales that were scheduled to be sold on the St. Joe District should be postponed because of the beetle situation.

Response: No timber sales on the St. Joe Ranger District have been identified to be postponed. Because the Douglas-fir beetle infestation is a priority project on the Forest, the timber sale funding and workforce on the IPNF would be prioritized to implement the activities outlined in the Record of Decision for this FEIS. This priority may cause a delay for other projects.

I encourage the setting of minimum bid prices, based on realistic harvest levels and realistic proposed costs for both current and future rehabilitative efforts for these areas of the forest.

Response: Normal timber sale appraisal and bidding procedures would be used for any timber sales. Restoration costs are estimated based on actual costs resulting from similar projects and adjusted for inflation.

We are skeptical as to the likelihood of the given time frame (I-8) actually being met. Will the given time frames be mandated in the sale contracts?

Response: We believe the time frames are realistic. There is a possibility of a delay resulting from appeals, which could expand the time frames. The harvest-related activities such as road construction and reconstruction, logging, and purchaser fuel and aquatic restoration treatments would be specified in the timber sale contract. Timber sale contracts are written with specific operating seasons and termination dates. Timber sale purchasers would be encouraged to remove beetle-infested timber as quickly as possible within the designated time frames in response to the emergency nature of the project.

Vegetation

GENERAL COMMENTS

How will removing the big old trees prevent fires and restore the ecosystem? Please cite literature proving these assertions.

Response: The Douglas-fir beetle unfortunately attacks the larger trees. Based on comments received on the DEIS, additional analysis was completed for the FEIS to analyze how logging would reduce fire risk by removing these dead and dying trees. Because of the number of other similar comments, your comment is answered more completely in the Fire/Fuels section of these Response to Comments. There are several documents and research articles which are cited in some of those responses, and included in the bibliography of the FEIS. Additional documentation also was added to the Vegetation portion of Chapter III.

As projects are being implemented consideration should also be given to overall management of these timber stands to prevent future catastrophic insect outbreaks. These beetles tend to attack larger trees in unmanaged stands. Therefore, to promote overall health of the forest we need to be managing stands for vigor and seral species.

Response: We certainly agree with your comment. Alternatives that include regeneration of early seral species (ponderosa pine, white pine, and western larch) and which improve the vigor of these species are included in the FEIS.

We often hear "How can you correct the problem created by logging by more logging? The statement should be corrected to explain that logging since the 1960's is not the problem. "Past Logging" was part of the problem prior to 1960 because fir had little or no value and logging was very selective helping to eliminate the pine forests. The main

effect of logging prior to 1960 was to speed up the successional process. Forty years later, the effect is that there is less fuel from dead white pine that would add to the fuel loading resulting from dead Douglas fir if action is not taken. Logging since 1960 has been successful in helping to change the composition back to a pine mix. The DEIS does allude to these facts latter in the document, but they should emphasized up front.

Response: The discussion on the impact of timber harvesting since the 1960s is included in the Chapter III, Characterization section. Regeneration harvests since the 1960s have tended to occur in relatively small blocks (when looked at the landscape scale) of 20 to 100 acres in size within larger areas of mature or old forest structures. This tended to fragment these structural stages into blocks that are smaller than occurred historically. Also, many stands regenerated in the '60s and '70s were planted with Douglas-fir and other shade- tolerant species, particularly on moist habitat types, because blister rust-resistant white pine was not available and the impact of root disease on Douglas-fir was not recognized. Road construction associated with timber harvests also had negative impacts on hydrologic function and wildlife habitat. Although there are some positive aspects of harvests that occurred during that time, there were also negative impacts.

The Key issue of Vegetative Restoration and Levels of Timber Harvest is deficient in that there is no discussion of vegetation other than trees. All other vegetation types are dismissed from analysis and therefore make the DEIS incomplete. Factors in the designation of "areas at risk" for the expanded green tree harvest in Alternative D are not defined.

The sections entitled Vegetation are all about tree species composition with little or nothing about forest ecology. Impacts to old growth characteristics in these areas are so important from a biodiversity perspective and are not adequately considered. In the dictionary, "vegetation" refers to plants in general, not just trees. This narrow focus on just trees in the "vegetation" analysis is the common Forest Service "can't see the forest" perspective.

Response: The above two comments are discussed together.

Maintaining diverse plant communities in the forest ecosystem is an important role of the Forest Service. As discussed in Chapter I, the IPNF and Colville use a step-down process to assess ecological integrity. Geographic Area Assessments were employed on the IPNF to evaluate vegetation, aquatic, and wildlife conditions at the mid-scale watershed level (i.e. Coeur d'Alene and Priest basins). A similar process was used on the Newport Ranger District. The process paralleled the strategy used for the Columbia Basin to examine various vegetative components including rare and unique plant associations, exotic species, etc. The assessments explicitly recognized changes in vegetative conditions, and focused on ecosystem-based restoration that aimed for integrated treatment of these needs.

Cover types have been the traditional means of describing plant communities, and reflect the type and successional status. In forested environments, tree species are used to describe cover types. The diversity of understory vegetation correlates with the type and amount of cover types across the landscape. As an example, Leiberg used cover types to describe the landscape which he saw in the 1890s.

The Forest Service now uses habitat types to classify plant communities. Each habitat type describes a unique set of potential tree, shrub, grass, and forb species that exist on site. Habitat types are designated by the potential climax cover type for a site. The FEIS used habitat type groups as well as cover types to describe the landscape. These are shown in Chapter III of the FEIS.

The FEIS also includes discussions and analysis regarding sensitive plant species, old growth areas, snag levels, and successional status.

REGENERATION

The planting of other species notably, white pine, larch and ponderosa pine would create a break in the nearly homogeneous forests we have now and tend to reduce the potential of other infestations like this. But again, an economic return from the salvage of this Douglas fir is needed to insure that this occurs. If some of these sales don't sell, all users of our National Forests lose.

Response: We agree with you about the importance of planting of the species you mention in your comment. As authorized by the Knutson-Vandenberg Act, the purchase price of a timber sale would include the collection of money to ensure that funds are available for planting of regeneration harvest units. Therefore, these units definitely would be reforested.

I'm not sure how much of the selective harvested areas can be brought back to white pine, larch and ponderosa pine.

Response: Selective Harvest, in the FEIS, refers to several different harvest prescriptions as described at the beginning of Chapter III under Silvicultural Terminology. In most areas only dead and dying trees would be removed. This may create openings that can be planted to early seral species. However, this generally would not be the case. The majority of planting of white pine, larch, and ponderosa pine would occur in the regeneration harvest units. For other selective harvests, improvement harvests and commercial thinning in ponderosa pine and larch stands are prescribed. These prescriptions would reduce competition between pine and larch and the shade-tolerant species to improve the vigor and growth of pine and larch where they already exist.

Nor am I sure that you have on hand enough seedlings from local seed sources to replant all harvested areas, though this subject may have been included in the DEIS and overlooked.

Response: For reforestation needs, each Ranger District routinely collects seed specific to habitat types and elevational zones on their unit. The seeds are stored at the Forest Service nursery located in Coeur d'Alene until a need has been identified, at which time they are sowed. Sufficient seed has been collected for the reforestation needs identified in the FEIS.

Forest Service press releases state that fire and bug-resistant trees will be planted after logging. Please explain how it can be known that the trees you would plant are in fact bug and fire-resistant. Are you proposing to use genetically-altered seedling/seeds? Various diseases, both root and topical, infect all of the seral trees you speak of. Through past intensive and extensive logging and road building, seral species have been depleted from the forests.

Response: As identified in the FEIS, western larch, ponderosa pine and western white pine would be the three primary species which would be planted. Today, as compared with historic conditions, these species are less common in the areas where the Douglas-fir beetle infestation is occurring. These species are not fire-resistant per se, but have adapted characteristics such as thicker bark and higher branching patterns in response to the fire environment of the northern Rockies. These characteristics help these species survive a surface fire while thin-barked species such as grand fir would be killed. They also prefer open conditions, such as created by a fire, to regenerate. Therefore, they could be characterized as more resilient to fire than some of the other tree species. Larch, ponderosa pine, and western white pine also are not bug- or disease-resistant per se. There are several insect species which specifically target these trees such as mountain pine beetle and larch casebearer. Root disease also affect these trees, but losses to root disease are not as high as with Douglas-fir or grand fir. Blister rust has decimated white pine stands.

As discussed in Chapter III, there have been a number of factors which have reduced the amount of seral species. Fire exclusion has been one important reason. Another reason has been diseases. Because of the white pine blister rust, an exotic disease which was introduced from Russia, large expanses of stands dominated by western white pine became converted to other species such as Douglas-fir, grand fir, and western hemlock because of the high level of mortality. Logging also reduced the amount of seral

species, but much of the logging was focused to salvage white pine where high mortality was occurring from blister rust.

Where possible the USFS activities should work toward bringing stands and forests back into a more historic balance. Specifically, these forests should be managed as mixed stands rather than as monocultures. I am concerned that in replanting your clearcuts you will put all western white pine in some and all western larch in another and so on. This will in the end lead to the same problems you currently have with Douglas-fir. A mixed forest is more resilient, better able to fend off insect or fungal attacks simply because there aren't as many of one type of tree readily available to the attacker.

Perhaps a program to carefully supply the forest with some of its previous diversity (White Pine, Red Cedar, Larch or Hemlock) would be a way to add resistance to the Douglas-fir beetle.

Similar Comments In addition to the detailed comment below, there were two other similar comments that expressed concern that the Forest Service would plant mono-species plantations in harvested areas and that such plantations could lead to many of the same problems found in homogenous stands of Douglas-fir.

Are mono-species plantations resilient to disturbances? Is genetic diversity in the population of planted trees similar to that of naturally regenerated trees? Or, which of the two populations has a better chance of adapting to major changes in environmental conditions (e.g. GCC)? How do conifer plantations affect litter decomposition, nutrient cycling, soil biota/chemistry and consequently the productive capacity of soils? What were the ecological roles of shrubs and deciduous tree species established during the early, post-fire phase of succession? (There is more to it then the commonly known role of nitrogen fixers!) What were the ecological functions of snags and coarse woody residues - the legacies from pre-conflagration forests? Habitats for vertebrate species only? Even partial answers to these questions indicate that fire, fire facilitated legacies and plant components of the early post-fire phase of succession - all of that, exerted a key - restorative role in productive capacity (fertility) of soils and had a bearing on ecosystem resilience to disturbances as well. This soil fertility "boost" phase of a natural post-disturbance succession has been and continues to be disregarded and by design eliminated in plantation management. Your DEIS is again no exception.

Response: Mono-species plantations have not been established, managed for, nor proposed on the Colville and IPNF for many years. The species planted generally are those that either are no longer present in adequate numbers to supply enough seed to the site or in which the best individuals have been removed by past logging and only the genetically inferior individuals were left. Two such examples would be white pine decimated by blister rust and western larch which has not regenerated because of fire exclusion. In almost every case, natural regeneration from leave trees within the stand and trees from surrounding stands also contribute substantially to diverse regeneration in planted stands.

Seed for plantations comes from areas within the same elevation zones and latitude/longitude zones as the sites to be planted. A great deal of research has examined the environmental constraints demonstrated by different species, and appropriate planting stock is derived from seed collected from local "wild" trees as well as nurseries established from "wild" trees. In many cases genetic diversity within species is enhanced by planting.

We wholeheartedly agree that shrubs, deciduous trees, large woody material and large snags play a variety of very important roles in wildlife habitat and soil fertility. The legal requirement to ensure full tree stocking within five years of harvest, while well-intentioned, has led to practices in the past that eliminated or greatly diminished the part that (what was then regarded as) "undesirable vegetation" or "wasted wood" played in soil and stand development. Current harvest prescriptions attempt to incorporate the latest scientific information on vegetation diversity, snags, large woody material, etc. into the harvest design and subsequent treatment of the site. It's not always easy to balance concerns about wildfire with nutrient conservation, or habitat for interior-dwelling wildlife with needs for edge-loving species, or thinning to promote healthy, well-spaced trees with the need for lynx habitat.

The reported imbalance in species of trees has resulted largely from past logging practices. I am not confident that the Forest Service will be able to make a significant enough change in the overall ratio of tree species in the Coeur d'Alene Forest by the proposed regenerative growth practice on the 248 acres designated for on the Coeur d'Alene Lake parcel and 403 acres in the Hayden parcel. The biggest areas slated for regeneration under Alternative B is the Hayden Lake area, which is the very area that would have the most negative visual impact. Over time a much larger positive impact for modifying the tree species ratio would appear to be to practice regenerative growth in newly logged areas year after year as a routine practice. If this is already done, then I see no need to employ this practice for the small acreage affected by Beetle infested trees that we are trying to salvage.

Response: Although past logging practices have played a role in creating this "imbalance in species of trees," white pine blister rust and fire exclusion have also been major contributors to the decline of seral tree species and the increase in more shade-tolerant species. You are correct in stating that this project would not make a significant change in species composition across the Coeur d'Alene Forest. As stated in the document, there is only a 1% change in species composition within the six Analysis Areas and this percent change is even less when the entire forest is considered. However, vegetation restoration is only one purpose of this project. Watershed, wildlife, and fisheries restoration as well as fuel reduction are also important considerations. The project plans to take advantage of the beetle caused mortality to accomplish these objectives.

The Forest Plan for the Idaho Panhandle National Forests emphasizes reforestation with seral species. Approximately 1,000 to 2,000 acres in units of 5 to 40 acres in size are planted with these species every year on the Coeur d'Alene River Ranger District. This is similar to the acreage proposed in some of the alternatives. Although this is a very small percentage of the district, these are very complex ecosystems and concerns about visual quality, water quality, air quality, fisheries habitat, wildlife habitat, recreational opportunities and a host of other issues limit the amount of vegetation restoration that can be accomplished. The Douglas-fir beetle is creating opportunities for vegetation restoration in areas that the beetle chooses and this project proposes to take advantage of those opportunities where they exist.

HARVEST PRESCRIPTIONS

Similar Comments There were ten general comments from individuals who supported harvesting only the infested trees. Some of these commentors also stated that they opposed harvest of any tree that was not infested. No individual responses are needed for these comments. This concern was expressed during the initial scoping for this project, and resulted in the development of Alternative E, which would harvest only dead and dying trees.

I believe this project has a short term outlook in looking at forest structure and composition that are outside natural ranges of variation. I tried to find a clear cut shown adjacent to my property and only found small pockets of root rot mortality. The maps provided don't allow for ground-truthing, which is imperative in a project of this magnitude. What I did see were older clearcuts in need of thinning, which would aid in slowing future outbreaks of the bark beetle as well as trending to more historical stands.

Response: The stand bordering your property was reviewed this spring. We hope that your questions were answered during the field review with Grant Brockus of the Priest Lake Ranger District. This area was heavily impacted by the winter damage, resulting in a large amount of blowdown. These trees provided a favorable breeding area for the beetles, which subsequently infested the standing Douglas-fir. As you mention, there also are pockets of root rot mortality. The size of the proposed unit would be less than 5 acres.

We agree with your comment regarding the need for thinning in some of the older clearcuts in your area. These stands have been scheduled for thinning in the future. The exact timing of this thinning would be decided after a decision has been made on habitat needs for lynx.

The distinction between Selective and Regenerative harvest decisions and definition of harvest boundaries are not explicitly defined. Nor is there any mention of planning for reforestation beyond the initial potential replanting of clearcuts, or thinning of selective harvest tracts.

Response: The definitions of selective and regeneration harvests in Chapter III have been expanded in the FEIS. We hope that this improved definition clarifies the distinction between these two harvest types. The acres of planting are included in the description of alternatives in Chapter II for the regeneration harvests. To clarify, no clearcutting is included in any alternative.

Timely applied thinnings (positive selection, thinnings in the CD level) would have strengthened tree resistance to snowbreak, strengthened tree's root system, resulted in increase carbon production and stores --->led to higher resistance to bark beetles and root rots alike. Was this done on your forest? Should this not be the highest priority in as yet "beetle free" or "low risk" areas? Why do you focus on removal as though you're trying to obscure things. Besides, aren't selective harvests regeneration harvests if they're done properly? 5th sentence: Do not harvest green trees that are not in danger of being damaged by the beetles. Fourth paragraph, 3rd sentence: What are the long-term vegetative goals for these areas? Be more specific than "...vigorous, resilient forest." How long is long-term? What treatments would occur during this long-term period? Be more specific than "...cultured.."

Response: A "regeneration harvest" system refers to the objective of managing a stand of trees to establish regeneration (seedlings). There are several types of prescriptions that could be used in a regeneration harvest. A clearcut prescription is one type of regeneration system. As defined in the glossary, a clearcut is a regeneration harvest in which all the trees are removed. No clearcuts are proposed for any of the alternatives. There are other regeneration harvest systems which may result in a very open stand, yet still leave a portion of the trees remaining on the sites (refer to "Silvicultural Terminology" in Chapter III and in the glossary). The definition of regeneration harvest is written to give the reader a description of what to expect for residual trees remaining after the harvest and what activities would occur as part of this prescription.

The term selective cutting is synonymous with partial cutting. This is a harvest system that removes only a portion of trees in a stand for purposes other than regeneration of a new age class of trees. One type of selective cutting are thinnings. Thinnings accomplish some of the positive effects you state in your comment including strengthened root systems, increased resistance to forest pathogens, etc. Thousands of acres of precommercial and commercial thinnings have been accomplished on each of the three ranger districts. Thinnings would continue to be used as a tool to favor seral species, reduce risk of lethal fires, to maintain vigor in stands, and other elements of ecological restoration. For some of the above reasons, thinning is also included as a harvest treatment in some alternatives.

Alternative E proposes to remove only dead trees in response to your desire to not harvest green trees.

Long-term vegetation goals are stated in the "Purpose and Need " in Chapter I. The reasons for trending toward these vegetation goals are addressed in Chapter III of the Vegetation section of the FEIS (in the Draft EIS this discussion was on pages III-270-272 and other places in the chapter). Long-term, as related to stand treatment activities (i.e. cultural activities), is for the life of the stand of timber and beyond. The time period is variable based on the objectives for the stand. As an example, cultural treatments in a dry-site old growth stand may involve periodic underburning to maintain the old growth structure and species composition. The life of this stand may be several hundred years. The objectives for managing other stands may require different cultural treatments which span a shorter length of time between treatments.

CLEARCUTTING

Similar Comments There were 56 general comments against the use of clearcutting as a harvest practice. An additional five comments opposing clearcutting were received from Hayden Lake residents and three comments from Priest Lake property owners. Several of these respondents cited their concerns about the

effects of this harvest method on water quality, scenery, wildlife, soils, recreation opportunities, and other resources.

Response: No clearcutting has been proposed in any action alternative. As described in the glossary for the EIS, clearcutting is one type of regeneration harvest method in which all the merchantable trees are removed. Regeneration results from planting, direct seeding, or natural seeding and follows site preparation by burning or mechanical means. An even-aged stand, in which the trees are basically the same age, is the product of this harvest method. Clearcutting was widely used on both the Idaho Panhandle National Forests and the Colville National Forests in the 1960s through the 1980s. Because of concerns regarding the effects of clearcutting on other resources, this cutting method is not as widely used on National Forest lands as it was in previous decades.

Definitions for the different harvest treatments can be found in the "Explanations of Terminology" card that accompanies the FEIS. Both regeneration and selective harvest methods would be used. Again, clearcutting is not proposed. Where regeneration harvests would be used in areas of high mortality from the Douglas-fir beetle, stands would likely look open with less than 30 percent of the trees remaining following harvest. The general view would be openings with scattered leave trees and clumps or patches of leave trees. Most of these areas of regeneration harvest would be planted.

Selective harvests would occur where less than 50 percent of the stand is dead or dying, or where public safety issues are a concern. On most areas, selective harvest would remove only the dead trees or thin out the smaller trees. In most instances, no planting would be done.

We have developed a large number of design criteria and mitigation measures to insure that concerns about the effects of all harvest methods are addressed when the project is implemented.

OLD GROWTH

Similar Comments: Four individuals commented that they opposed any harvest in old growth stands. Another comment was received which favored entry into old growth ponderosa pine stands to remove the younger Douglas-fir to allow underburning. This commentor favored only a limited entry into these types of stands.

Response: In response to other comments received during the initial scoping of this project, Alternative E was developed; this alternative would not include any old growth in the harvest activities.

Individual Comments
We don't want to see all mature Douglas fir in the area removed because it is at risk from the bark beetle.

Response: In the development of alternatives, only those stands with infested Douglas-fir are included. Unfortunately, the Douglas-fir beetle attacks larger, mature trees in the stand; these trees normally exceed 14 inches in diameter. Many of the older trees in the stands therefore are the ones which have been attacked and killed.

OLD GROWTH (Coeur d'Alene River District)

Individual Comments
The DEIS's description of impacts on old growth in the Coeur d'Alene District is only negative for the no-action alternative. However, since the Forest Service agrees logging won't stop the beetle - the very beetle which is threatening old growth in the no-action alternative- we would expect impacts to old growth forest to be at least equally adverse under logging alternatives. Yet such impacts to old growth are glaringly absent in the logging alternatives. This reveals the intentional bias of the DEIS towards logging.

Response: The impact of Douglas-fir beetles on allocated and recruitment old growth stands within the Coeur d'Alene River District Analysis Areas would be the same for all alternatives. A statement describing these potential impacts has been added to all alternative descriptions.

II-50 says, "Alternative A would decrease the old and mature forest by approximately 2% and, over the long-term, it is doubtful that these areas would ever provide old forest structure." Never, ever? This sounds like propaganda, especially since the DEIS nowhere intelligently discusses the succession of forests in these areas towards old growth, and the tendency for old growth to be a self-sustaining ecosystem over time. Nature is viewed far too mechanistically, with little understanding of the processes of life reflected in the thinking of those who would "control" such vast areas of the public domain.

Response: This statement has been clarified in the Final EIS in Chapter III in the Vegetation Characterization Section and Cumulative Effects Section for the Coeur d'Alene River RD. The intent was to indicate that stands dominated by Douglas-fir and grand fir would not provide the same old forest structure that was historically present in the Idaho Panhandle National Forests. Although these Douglas-fir and grand fir stands may provide some old growth characteristics, the key component of large remnant white pine and larch would be missing and root disease would likely create more open canopies. Old growth Douglas-fir cover types in north Idaho are not extensive, occurring primarily in small patches and on dry ridgelines. Douglas-fir in this area is a short-lived species due to Douglas-fir beetle, root disease, fire and grand fir encroachment.

(D) Old Growth: Page 240 of Chapter 3 indicates that the average DBH of the trees that would be logged is 18 inches. The Final EIS should state whether any of areas proposed for logging have trees with Old Growth characteristics. If there are areas with such characteristics, the Final EIS needs to indicate where these areas are and the number of acres with these characteristics. If there are green trees with a DBH of 18 inches or greater, that do not have bark beetle problems, and are planned to be logged, the Final EIS should state which of the areas have these trees. The number of acres of green trees with a DBH of 18 inches and greater proposed for logging needs to be supplied in the Final EIS in the section relating to Old Growth.

Response: The average DBH of trees to be harvested is estimated at 18 inches. This is because the Douglas-fir beetle prefers the larger trees. Although individual trees may be managed for their value to wildlife (i.e. snags or broken topped trees) they are not considered to have old growth characteristics. Stands of trees may have old growth characteristics. An analysis of the Coeur d'Alene River Ranger District to determine which stands had old growth characteristics was completed in the early 1990s. Stands which were to be managed for their old growth characteristics or to provide future old growth were then designated as "allocated" or "recruitment" old growth.

Green trees 18 inches and larger may be removed from units designated for regeneration harvests in order to enhance survival, growth and establishment of planted trees. Some incidental removal of green trees may be necessary in selective harvest areas for reasons such as skyline corridors or crew safety.

On the Coeur d'Alene River Ranger District, there would be no harvest activity in allocated or recruitment old growth stands.

OLD GROWTH (Priest Lake District)

Individual Comments

As stated earlier; SPBA supports efforts to maintain old growth Ponderosa pine sites as well as dry-site rehabilitation.

Response: As stated in the vegetation analysis in Chapter III for Priest Lake, limited areas of dry-site old growth ponderosa pine remain. This reduction has resulted from the elimination of low-intensity wildfires that thinned the stand, which allowed the larger mature trees to advance in age. Past timber

harvests also removed the larger trees in many stands. Because there is limited acreage of these sites, maintaining them by re-introducing fire and removing the encroaching ladder fuels is very important.

The Priest Lake area, with its unique old growth, seems especially vulnerable; its shores seem sacred, and these plans as stated seem unconscionable.

Response: Impacts to old growth were considered to be a key issue for the analysis. Alternative E was developed to address this issue; no old growth stands would be treated in this alternative. In alternatives where old growth stands would be treated at Priest Lake, the intent is to maintain or improve old growth characteristics on dry sites. No moist forest (i.e. cedar or hemlock) old growth would be harvested. The amount of old growth acres which would be treated varies among the alternatives. Alternatives B and C would treat 304 acres of dry-site old growth and D and F, 338 acres. No harvesting of trees would occur in Alternative G, but 195 acres would be underburned. The analysis is included in the FEIS.

I am very opposed to the logging of old growth Douglas-fir in the Priest Lake area.

Response: Unfortunately, the Douglas-fir beetle attacks the larger trees in the stand; these trees normally exceed 14 inches in diameter. Many of the older trees in the stands therefore are the ones which have been attacked and killed. In the development of alternatives, only those stands which have been or are projected to become infested are included. Alternatives A, E, and G would not include any logging of old Douglas-fir trees.

Undesignated Old Growth in the SW corner of Section 6 T57N R4W This area has white pine and hemlock between 3-4 ft in diameter, some as tall as 150 + feet. Despite the fact that all the above mentioned USFS staff felt that this area qualified for protections as "Old Growth" recent maps obtained from Deb Scribner, Sandpoint RD, while showing much smaller areas of old growth in Section 1 nearby, fail to show the area in question. Dave Cobb assures us that there are no current plans for work in this area but we are very concerned that without this "Old Growth" designation, this area that we are so fond of will fall prey to some future USFS process that would destroy it. We want to make these concerns a matter of record here.

Response: The above two comments refer to a specific stand in Quartz Creek. This stand is not included in any of the proposed activities. In 1989, a Forest Service stand examination crew field-surveyed this particular stand. The southern portion of Quartz Creek, where this stand is located, burned in a large stand-replacing wildfire in 1890. Because of the sheltered location, many trees immediately adjacent to a moist riparian area survived the fire. There are fewer old trees as one moves uphill. When old growth stands were designated in the early 1990s, this stand was not designated because it did not contain the specified number of old trees/acre based on the stand examination over the entire stand. Because of your comments, the stand will be re-examined this coming field season to verify its old growth status.

The DEIS states at II-9: Approximately 300 acres of dry-site old growth stands would be treated under this alternative in the Priest Lake area. They would be designed to maintain the old growth characteristics of these sites by reducing fuel loadings and maintaining large trees."

.....The problem is, nowhere does the DEIS discuss what old growth characteristics would be risked or depleted by the industrial logging treatments. Snags are a very important component which are some of the first casualties of logging (especially soft snags via OSHA regulations). Forest soils and the vegetation on the ground layer would not be the same after logging and slash burning. Nowhere does the DEIS (nor does the Forest Plan for either National Forest) consider the impacts of the guaranteed fire suppression [on old growth]. To keep this up, these National Forests will be addicted to the expensive paradigm of subsequent mechanical manipulation of forests deprived of a necessary and important sustenance--fire.

Whereas the DF Bark Beetle DEIS acknowledges that old growth has been depleted in the various Analysis Areas-in some areas quite severely, it completely fails to discuss the value of potential recruitment, undesignated old growth stands targeted for logging.

Response: According to the North Idaho Zone Old Growth Characteristics summary (which is referenced in the FEIS and included in the project file), old growth ponderosa pine, Douglas-fir and western larch stands in dry habitat types have an average of five snags per acre greater than nine inches diameter. Wildlife retention tree mitigation measures for dry forest types (Features Common to All Action Alternatives) provide for four snags and four live replacement trees per acre from the largest diameter size class. Retention of snags and snag recruitment as included in the FEIS would maintain this component within the range of snag densities found in dry-site old growth.

Disturbance of understory vegetation in dry old growth forests historically occurred at variable intervals in the form of low-severity fires that maintained these stands in an open condition. Fire intervals are discussed in the Fire/Fuels section of Chapter III. In the driest habitats, the understory was typically dominated by grasses and low shrubs. In the absence of fire, stands have become much more closed as relatively shade-tolerant Douglas-fir and grand fir encroached on the larger ponderosa pine. As the overstory canopy closed, grasses were eventually displaced by a higher shrub density.

Historically, moderately dry stands also were somewhat open, but typically had a taller, denser shrub component. They burned at intervals of less than 50 years, but experienced some higher-severity, stand-replacing fires if fire return intervals exceeded approximately 50 years.

Harvest activity as proposed in both dry and moderately dry stands would trend them toward their historical more open condition.

The FEIS, in the analysis of effects of Alternative B in Chapter III, explains that the proposed treatments would maintain ponderosa pine stands which currently meet old growth criteria, and would also enhance the potential old growth characteristics of several additional ponderosa pine stands.

A more detailed description of the dynamics of dry old growth forests has been included in the FEIS in Chapter III - Vegetation, Existing Conditions.

OLD GROWTH (Newport District)

Individual Comments
Conversations with FS personnel on the Colville revealed that the Forest Service plans to log 21" trees--why is this contradicted in the DEIS? Please reference the science which states that removing old trees will improve long-term ecological integrity.

Response: To clarify, no old growth or late structural stage stands would be entered. As also stated in the description of the alternatives, no 21" + tree would be marked for removal. However, there possibly could be incidental removal of individual trees of this size for safety or similar reasons.

VEGETATION ANALYSIS

Individual Comments
What percentage of the trees removed will be dead and dying, and what percentage of the trees removed will be live? Please specify this.

Response: Two types of harvest are included to treat the Douglas-fir beetle infestation--regeneration harvest and selective harvest. The objectives of these harvest types are defined at the beginning of Chapter III. The acreages of these treatments, including the acres of treatment removing some green trees, are displayed in the Comparison of Alternatives section of Chapter II.

A summary of each individual unit is located in the project file that shows the estimated "associated volume" to be removed. Associated volume are the green trees that are planned to be removed in the regeneration and selective cuts to meet prescription objectives. As an example, if underburning is prescribed for a unit, the green trees that would not survive the burn would be removed. The percent of "associated volume" is generally between 5 and 30 percent of the total volume harvested for those units. In the salvage-only units only the dead and dying trees would be removed.

It is really not clear as to the extent of the proposed logging of live, green trees (not under attack by beetles) in the various alternatives. For Alt. D, II-12 says: Regeneration harvests will be used in stands where most trees have been killed and retention of the residual live trees is not necessary to meet visual quality and wildlife objectives. Green trees not affected by bark beetles may be removed from these stands in order to create a suitable environment for the establishment of seral species. So why is this necessary in Alt. D, but not in B, or perhaps it is in B--just not stated so?

Response: Selective harvests are included in both alternatives. Chapter II shows the acres of regeneration and selection harvest by alternative, including both Alternatives B and D. The definitions of these harvest types is included in Chapter III. The objectives of selective cuts also include thinning to maintain such species as ponderosa pine and larch or move a stand toward a desired structural stage.

The alternatives propose to violate the NFMA and Regional limit on opening sizes. Whereas the DEIS claims the beetle activity constitutes a "catastrophic condition" for which the aforementioned opening size limitations don't apply, we re-emphasize that the actual field data is still far too limited to demonstrate a "catastrophe" by any definition.

The summary DEIS indicated that a waiver of the restriction limiting regenerative harvests to 40 acre areas or less would be requested. The summary DEIS should explain that the 40 acre restriction does not apply to the regenerative harvests proposed and why this is so. The beetles have already opened the canopy by killing trees. In most cases, a harvest location will consist of a mosaic of small groups of infested trees each covering 5 acres or less, but totaling more than 40 acres.

Response (to the previous two comments): The FEIS would not violate NFMA or the Northern Regional Guide. Although NFMA sets a size limit for cut openings (40 to 100 acres depending on forest type and geographic area), it also states that these size limits may be exceeded after 60 days public notice and with approval by the Regional Forester. It further states that the established limit shall not apply to areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm. The scope of the current Douglas-fir beetle infestation certainly is an example of catastrophic conditions as defined in NFMA.

The public was notified of our intent to regenerate areas larger than 40 acres in size in the project proposal mailed in November 1998. The DEIS stated on page II-9, paragraph 6, "In some cases, regeneration openings on the IPNF would exceed 40 acres..." On page III-4, paragraph 2 the DEIS stated, "The size of openings created by the beetles and described above would range from approximately 5 acres to 300 acres, following the pattern of openings created by the beetles." Opening size was also discussed on pages III-30, III-34, III-38, III-40, and III-41. These sections are also included in the FEIS (although page numbers are different). The size of openings expected to be created by the Douglas-fir beetles was also discussed at numerous public meetings held after release of the DEIS.

Indicate the percentages of National Forest Lands and other public and private land found within each watershed. And, describe other public and private activities planned for or underway to respond to the beetle outbreak and how the proposed ecosystem restoration activities would interact with those activities.

Response: These percentages have been added in the FEIS. The Reasonably Foreseeable Actions on non-National Forest lands are listed in Appendix E. These actions were discussed and analyzed by resource area as part of the cumulative effects analysis. Many private landowners are removing beetle-infested trees as soon as possible to prevent additional mortality to their trees. Much of this removal has already occurred, prior to any activities on National Forest lands.

The DEIS repeatedly notes that selective logging "would not improve species composition or long-term stand structure" (i.e., III-39) so it appears that the only benefits would be to those who would get cheap logs from public forests.

Response: Selective harvest is described in the Silvicultural Terminology at the beginning of Chapter III. Selective harvest would occur in stands where less than 50 percent of the stand is dead or dying. On most areas, only the dead and dying trees would be removed. As discussed in this description, however, thinning and improvement cutting would be used in some areas to maintain or enhance the growth of western larch or ponderosa pine or move the stand toward a desired structural stage. In the analysis of effects, the changes in species composition and stand structure resulting from the combined effect of all types of harvests are disclosed. More detailed unit-by-unit information on change resulting from selective harvest is located in the project file. This information shows that some units' species composition would change and others would not. Stand structure in selective harvest units would remain the same.

The purpose and need of the project includes recovering the value of the trees to pay for aquatic and wildlife habitat restoration as discussed in Chapter I. By harvesting infested trees as quickly as possible, we can best provide economic benefits to local communities while providing for the greatest opportunities for long-term restoration within the affected areas.

Also, there are expected to be no changes in stand structure beyond that caused by the bark beetle so the stand structures resulting from the Alternative A (No Action) would also apply to all other alternatives. This completely ignores the fact that, as the DEIS admits elsewhere, extensive removal of live, healthy green trees would occur--especially in some alternatives.

Response: This statement has been clarified in the FEIS, but the intent was to signify that any changes in the four structural stage categories listed would be caused by Douglas-fir beetles and not by the type or amount of harvest. The FEIS, in Chapter III, Vegetation Section under "Methodology," gives a more detailed description of the structural stage categories. There is considerable variation within each structural stage category. Stands in the shrub/seedling/sapling structural stage may contain shrubs or seedlings only a few years old with no live overstory trees or they may consist of trees over 30 years old. Some stands in this structural stage may have scattered overstory trees while others may have none. Stands in mature or old forest structure may have more than 200 large trees per acre on moist habitat types or less than 40 trees on some dry habitat types. The proposed removal of green trees in conjunction with dead tree harvest may reduce canopy closure but would not change the structural stage category of the stand.

In stands where selective removal of dead and dying trees is proposed, there may be incidental amounts of green trees harvested from skyline corridors, tractor skid trails, or for safety reasons. No change in stand structure is anticipated in these areas.

In stands where regeneration harvests are proposed, some green trees in some alternatives may be removed to enhance the survival and growth of early seral species to be planted on the site, but most of the overstory would have already been killed as a result of Douglas-fir beetle attack. In this case the shift from mature or old forest structure to shrub/seedling/sapling is caused by the beetle.

Improvement harvests in stands with a major component of ponderosa pine are proposed in some alternatives. This type of harvest would remove some of the green, shade-tolerant understory trees in addition to dead and dying trees but the dominant live overstory trees would be retained. These stands would be less dense following harvest and underburning but the stand structural stage would remain the same.

Commercial thinning in stands with a major component of western larch is proposed in some alternatives. This type of harvest would include the removal of some dominant and codominant green trees to enhance

the growth of western larch. Although these stands would be less dense, the basic stand structure would remain unchanged.

All alternatives would retain snags and recruitment snags as a part of forest structure.

We contend that historic documents on the subject do not agree that the existing condition is outside a historic range, and even if it were, the treatments proposed are untested, undocumented and probably wrong. Vegetative conditions analyses, of course, are based upon the level of understanding of the dynamics of forests down through the ages (i.e., "A significant change from common historic patterns is indicative of unhealthy conditions" [III-181, emphasis added]. Two problems thus emerge to the forefront. First, the Forest Service has very little data on this subject, and usually relies upon single snapshots in time. This single snapshot then becomes the target condition (i.e., "desired future conditions) which ignores the vast range of potential conditions.

Response: We are very aware of the dangers of using "single snapshots in time", as well as the dangers of biases that may be incorporated in any single "snapshot in time". Literally dozens of different historical information sources were assembled and analyzed to characterize the historic range vegetative conditions.

For the vegetation portions of the historic analysis, groups of vegetation specialists examined trends over time across these different historical sources, analyzed and compared the various sources to uncover any biases or special historical circumstances that might have influenced particular historical information, and compared the historical narratives and data to hard evidence like historic photos, records of large forest fires in the last 100 years, and fire history studies that go back over 450 years. Results of successional modeling were also compared to analysis of historic data to uncover potential discrepancies. The historic vegetation data presented by the Forest Service represent the most likely mean conditions and historic range of variability over the last few hundred years, in the judgement of the vegetation specialists that analyzed all these sources. The list of historic inventories is included in the project file.

Virtually all the specific contentions about errors in the Forest Service characterization of historical conditions arise from two of Leiberg's four northern Idaho publications. The Forest Service characterization of historic conditions was developed not just from these two snapshots in time, but was developed from analysis of dozens of historical sources.

Which units would fit into the rocky, south and west facing yellow pine phase, and which into the red (Douglas) fir dominated sites, and which fit in the white pine zone? How will clearcutting, or leaving 20-30 or less trees per acre return those sites to the historic, recorded condition of 100 years ago?

Response: These phases or zones which you specified in your comment were used by Leiberg in his reports to categorize the existing vegetation types. These surveys were conducted in the 1890s. Though Leiberg's vegetation classification is different from our current system, it does correlate with our current habitat type group classification. These are located in Chapter III of the FEIS in the vegetation section. Each analysis area is categorized by acres of habitat type groups (i.e. dry, moist, cool/moist and cool/dry) as well as forest cover types (i.e. such as ponderosa pine, Douglas-fir, and white pine). The rocky, south and west-facing yellow pine phase that Leiberg described would involve the dry habitat group and the ponderosa pine (i.e. ponderosa pine) cover type. The Douglas-fir dominated sites would include portions of the dry and moist habitat type groups, and Douglas-fir cover type. The white pine zone correlates with the majority of the moist habitat type group. The analysis of watershed units depict the number of acres by cover type for each alternative.

Your comments also questioned how we would be able to return to historic conditions if we clearcut or leave 20-30 trees per acre. Again, we are not proposing clearcuts. Some of the regeneration harvests would result in a mosaic of openings, scattered trees, and groups of trees. These patterns existed in mixed-severity wildfires. On some sites, 20-30 trees per acre represents the number of trees that have survived the Douglas-fir beetle. For the drier ponderosa pine cover types, this number approaches the historic levels of open-grown trees. In other situations, this number of trees per acre would be left to create a

desired mosaics of snags and future snags, a seed source for natural regeneration, and genetic contributions to future stands.

What is the model for stand succession that the Forest Service is using for the 25,000 acres of clearcuts and near-clearcuts? NEPA requires scientific methodology, and information be available to the public, yet we see no documentation that planting white pine in clearcuts has ever grown mature trees, let along old growth. Even Leiberg 100 years ago described the centuries of succession that took place from fire, blowdowns, shade tolerant species, etc.

Response: Your comment relates to how vegetation changes over time as a result of disturbance and succession. This is documented in the Vegetation portion of Chapter III. The methodology of determining the successional changes over the last century is described in the comparison of historic and current forest vegetation conditions in the Geographic Assessment for the Coeur d'Alene and the preliminary findings of an assessment currently being prepared for the Priest basins, and the Ecosystem Analysis for the affected watersheds on the Newport Ranger District. Forest composition and structural changes over the last century were determined from a review of numerous historic inventories and characterizations. These assessments were disclosed in the FEIS as a basis for characterizing forest vegetation changes. In addition, the analysis areas have been characterized by habitat type. The predictions of how forest vegetation responds to change is based on the successional pathways described in *Forest Habitat Types of Northern Idaho: A Second Approximation* (Cooper et al. 1987).

Is the shift to shade tolerant species a natural succession for these forest stands, as suggested by recent scientific literature? Aren't stands that favor shade tolerant species actually more productive during part of their stand development - say from 6- to 150 years? Isn't it natural for biomass to increase with advancing succession?

Response: Your question on the shift to shade tolerant species being a natural succession for these forest stands is correct, except, that historically the "vast majority of the land area included in any one habitat type is recovering from disturbance and thus occupied by seral plant communities" (Cooper et al. 1991, p. 5). What we have today is a trend away from the historic landscape of seral plant communities to the later successional "shade tolerant species" which were much less prevalent on the landscape (see Vegetation, Chapter III, Historic vs. Current Condition).

Your comment also includes two other questions. These questions are difficult to answer in a general sense because of the variability of ecological processes. In terms of density of trees or volume of biomass, such moist-site habitats as western hemlock and cedar, where a variety of shade-tolerant species can regenerate and grow, are "more productive" than the drier Douglas-fir or ponderosa pine habitats. These seldom develop in climax "shade-tolerant" species under natural conditions. Stands that "potentially climax" with shade-tolerant species are more productive for timber growth in the seral species stage of development.

Biomass does increase with advancing succession and is a cause for frequent disturbance (such as fire) which then recycles the biomass to decreased levels.

Three USGS surveys of the Forest Reserves in Northern Idaho, all authored by John Leiberg, took place in 1895-98. The Priest Lake survey describes the traverses the surveyor took across the area, states "large areas where the forest is untouched have an extremely dense growth" some stands containing 120,000 board feet per acre. The Draft EIS also cites the Priest Lake survey, but fails to mention many important details of that survey such as fuel loading and misrepresents the amount of Ponderosa pine that Leiberg found. Where did the FS arrive at the numbers that appear in the Table III-85, page III-85 of DEIS, Volume 2, indicating the historic cover of ponderosa pine was 3.7%? How did the Forest Service come up with different percentages, indicating that 4% of the tree species were pinus ponderosa (yellow pine)?

Response: There were undoubtedly a few forest stands that historically carried some very dense stocking. The 120,000 board foot per acre you attribute to Leiberg's report is consistent with more recent data on old growth white pine or cedar on only the very most productive sites. However, stands this heavily stocked

have always been rare, and Leiberg does not claim these volumes were common. In fact, when Leiberg actually assigns volumes to land areas, Leiberg's Priest Lake study only includes volume ranges from 1,000 to 40,000 board feet per acre (Leiberg 1899, p. 248), with the mean volume on sawtimber stands approximately 5,000 board feet per acre. Utilization standards have changed since that time, and 5,000 board foot per acre measured 100 years ago would translate to a somewhat higher volume today (but nowhere near 120,000 board foot per acre).

Your comment also questions the amount of ponderosa pine. As stated above in a previous response, a number of historical resources were analyzed to characterize the vegetation, not only Leiberg's report. The list of historic inventories is included in the project file. The historic vegetation data represent the most likely mean conditions and historic range of variability over the last few hundred years in the judgement of the vegetation specialists who analyzed all these sources.

If this was the case 100 years ago, it seems clear that the Forest is not outside a historic range of tree density or fuel loading. Instead, the proposed action alternatives are outside the range of historic conditions and are therefore inappropriate. Please present in the Final EIS a credible agreement or refutation of the stand density/fuel loading argument and scientific documentation for your argument.
....The photos show dense stands of trees, particularly in the white pine zone, and few "open" stands. The photos also show burned areas with thousands of snags per acre, as well as the descriptive statements of downed wood debris everywhere.

Response: The discussions of tree density and fuel loading are included in Chapter III, Vegetation and Fire/Fuels sections. Based on comments we have received, these sections have been clarified in the FEIS. We agree that the historic forest included wide variability in stand density and structures, and fuels, including some dense stands with high fuel loading. Leiberg did comment on those conditions based on his visual estimates, but did not have any measured data.

Even on the small portions of the IPNF that were dominated by dry forest habitat types, historically only about 40-60 percent of the dry landscape at any given time would have had the open forest stands dominated by large trees forest. Because of natural variability, the other 40-60 percent of this dry landscape at any given time would have been a mosaic of denser, younger stands, a few dense older stands, and openings recovering from past fires. We did not use the "dry" ponderosa pine model to characterize general historical conditions in northern Idaho.

The moist forests of northern Idaho and eastern Washington historically included areas of dense stands, some of which also carried large amounts of woody fuels. Often, the high fuels loading were a contributor to the severe fires that periodically occurred. The moist forest landscapes had mixed severity fires once or twice per century that tended to thin forests, clear understories, and break up fuel continuity. But these mixed severity fires also generated some large fuels, and did not occur frequently enough to maintain open understories across large landscapes. There is no evidence that fuel loadings are outside of historic levels on the moist types (personal communication--Art Zack, IPNF Ecologist) as discussed in Chapter III, Fire/Fuels. Overall, moist habitat types tended to be a mosaic of forest stand structures and densities, but dense stands were common. Landscapes dominated by dry forest habitats generally have higher densities than under historic conditions, and fuel loadings are high.

Where there have been recent weather and insect-related disturbances, forest stands are accumulating fuel. The same types of disturbances under historic conditions would have led to similar fuel accumulations. Historically, that was often a precursor to stand replacing fires that followed when suitable weather conditions presented themselves.

The Coeur d'Alene survey describes conditions at lake level and on the benches above the lake. It states some of the bench is in an open park like condition, but that usually the stands contain dense fir and lodgepole mixed in with the Ponderosa Pine. How will clearcutting 5000 acres and near-clearcutting another 20,000 acres restore this area to a natural or historic condition, since fire leaves snags and woody material as shade for new seedlings, and stand succession may

depend on this material? We would also like an explanation of where the western larch went in the last 100 years. Was the loss solely attributable to logging? If so, this should be acknowledged, instead of implying that fire-suppression or disease somehow reduced these numbers.
....While the above is for the Priest Lake reserve, the report of the areas around Lake Coeur d'Alene also indicate many areas of dense stands. It is clear that Douglas-fir and grand fir were a major component of the forest, and were dense even in the yellow pine (ponderosa) zone.

Response: Historically, there were areas of dense fir and lodgepole pine mixed in with the ponderosa pine as well as areas of open ponderosa pine structure. On National Forest lands the open ponderosa pine structure largely has been lost through a combination of fire exclusion and harvest practices that encouraged the regeneration of shade-tolerant species. These open ponderosa pine stands provide important habitat for big game species as well as flammulated owls and other species.

Nowhere in the EIS is there any mention of clearcutting or near-clearcutting. Definitions of the harvest treatments are described On the "Explanations of Terminology" card that accompanies the FEIS. In fact, as shown in the Comparison of Alternatives in Chapter II, only dead trees would be removed from most of the harvested acres.

A detailed description of changes between historical and current conditions (including larch) is provided in the FEIS in Chapter III under Characterization. There have been a combination of reasons including fire exclusion, forest diseases, and logging which have reduced the amount of larch.

NOXIOUS WEEDS

Individual Comments
Logging promotes spread of noxious weeds.

Response: We clearly discuss in the document that the introduction and spread of noxious weeds can be attributed to human-caused disturbance and dispersal from vehicles and roads, livestock, contaminated seed, recreation, ineffective revegetation practices and timber harvesting.

Salvage logging should be done on frozen, snow-covered ground to minimize soil and ground cover disruption. This will also help to minimize the spread of weeds.

Response: Thank you for the suggestion. Logging sometimes is specified to occur in the winter to minimize soil displacement, especially on sensitive land types. This is a design feature identified in Chapter II to be implemented for harvest activity close to peatland habitats on Priest lake.

The use of winter logging, however, is limited across the Forest often due to the high cost of maintaining backcountry roads in the winter. Another reason is the variability of snow depth and temperature in the winter across the Idaho Panhandle during any given year. Many of the areas with beetle infestations, especially on the Coeur d'Alene portion of the EIS, are located at relatively low elevations where winter snow depths are shallower and temperatures are warmer. As discussed in the Environmental Consequences in Chapter III, canopy loss, resulting from the beetle infestation alone and the openings it creates, would increase the risk of invasion by certain weed species that are already present in the affected area.

Noxious weeds... We will discuss this problem next but our concerns are magnified for dry site areas. Mandatory cleaning of equipment and winter logging should be required, especially for such areas that are particularly vulnerable to weed encroachment. SPBA's position is the Forest Service is still not taking the noxious weed issue seriously. It is an enormous problem and the agency (in our opinion) is missing the last significant opportunity to effectively deal with invader species before the problem gets totally out of hand. In conversations with noxious weed experts, we were informed that Forest Service's proposed activities will definitely increase the spread of noxious weeds. Temporary roads

and other "grassed in" areas will definitely host noxious weeds such as spotted knapweed and hawkweed. Ground disturbance and/or >50% canopy openings will be highly conducive to invasion by the above species... despite re-seeding efforts. The Forest Service states in the DEIS that effectiveness monitoring will only take place "If funding is available" (DEIS, page 11-29, vol. 1). This is not sufficient. The ICBEMP identified noxious weeds as "the single greatest threat to biodiversity." Yet the Forest Service allocates a cursory discussion to the topic and promises to monitor control mechanisms only "if funding is available."

Response: In response to your comment, the requirements for cleaning off-road logging equipment are expanded in the FEIS (Chapter II) to include all areas, regardless of pre-treatment activities or current infestation levels. This requirement would help to reduce the risk of introduction of new weed invaders. As stated above in the response to the preceding comment, some winter logging does occur on the Forest. However, exclusive winter logging is not feasible due to the reasons discussed above.

We do recognize the noxious weed problem. We discuss that the introduction and spread of noxious weeds can be attributed to various human-caused disturbances such as road construction and reconstruction, timber harvesting, livestock grazing, and recreation as well as by the use of contaminated seed and ineffective revegetation practices. In Chapter III the increased risk of weed invasion for proposed activities is analyzed. Grass and forb-dominated communities would be at a higher risk of invasion. We also discuss the risk of invasion on certain plant community types due to canopy openings caused from the beetle infestation alone. For the Douglas-fir Beetle EIS, high priority treatment areas identified in the Priest Lake Noxious Weeds EIS, and the Coeur d'Alene Noxious Weed DEIS would be pretreated under the contractual provisions identified in Chapter II. The other mitigation measures in Chapter II also would be implemented.

Funding to do effectiveness monitoring as well as other future weed control treatments is provided by such sources as KV funding from timber sale receipts or Congressionally appropriated dollars. We cannot guarantee that sufficient dollars to conduct weed surveys and monitoring of all activity/treatment areas would be generated by KV funding. Because of the increased awareness and concern of the noxious weed problem, appropriated dollars for noxious weed inventory and treatment has been increasing. However, we also cannot be assured that these funds would be available for such work.

The discussion of cumulative effects of noxious weeds seemingly contains contradictory statements which should be reconciled. For example, the cumulative effects of Alternative D and F is characterized as low to moderate and all other action alternatives are characterized as low. (p.III-267) The action alternative are also characterized as not contributing to weed spread despite the display of acres of habitat susceptible to invasion by one or more weed species. (Volume II, Table III-245) In addition, clarify how features of the action alternatives would reduce the potential for noxious weed infestation and spread, and how the noxious weed features listed at page II-17 would complement and/or substitute for KV funding.

Response: You are correct, these are contradictory statements that have been changed in the FEIS. The difference in cumulative effects of noxious weed infestation and spread is minimal among the action alternatives. For the weed species of concern within the analysis areas, certain species are expected to have a moderate level of cumulative effects in habitats susceptible to invasion on federal, state and private lands. However, implementation of listed design criteria and prevention measures (timber sale contract provisions, off-road equipment washing and pretreatment of identified areas on haul routes, reseeding, use of weed free straw/mulch) would for many weed species result in low cumulative effects. The risk of invasion and establishment of new weed species would be low.

In the FEIS we have also changed the discussion of the characterization of weed spread with the following:

> **"While existing infestations of certain weed species may continue to increase on Federal lands and adjacent private lands, proposed activities in action alternatives would minimize the risk of weed**

spread by application of the Noxious weed features stated in Chapter II. Weed treatments and prevention practices would minimize, but not eliminate, the risk of weed spread."

The design features in Chapter II would complement additional weed work that could be done with KV or appropriated monies. These features, especially washing of ALL off-road equipment prior to being brought into timber sale areas, would reduce the risk of introducing weeds, especially new invaders not known yet in our ecosystem. Pretreatment control methods (brushing, mowing, or spraying) of previously identified infestation sites, especially along haul roads and roads that would be reconstructed, would slow the spread from these existing infestations by reducing the quantities of viable seed. Noncertified grass seed and straw or hay, often is contaminated with seeds from other plants, including noxious weeds. The required use of certified weed free grass seed and weed free straw and hay effectively negates this risk.

TLC and TECI have commented (and appealed) extensively the IPNF's noxious weed control plans (EISs), and the issues we have with noxious weed spread are well-articulated in those comments and appeals. We incorporate those comments and appeals, by reference, within these comments.

Response: We are very aware of the concerns which were expressed during the planning efforts of the various Noxious Weed EISs on the Forest. Your comments and concerns were addressed and incorporated into those documents. This EIS tiers to the analysis which was completed for those documents, and implements the decisions and recommendations of those projects.

President Clinton issued an executive order in early February, 1999 concerning invasive species. How will the Forest Service comply with this executive order in terms of this project?

Response: This comment refers to Executive Order 13112, signed by President Clinton on February 3, 1999. This Executive Order instructs Federal agencies, "to the extent practicable and permitted by law, and subject to the availability of funds to:

1) *Identify actions that may affect invasive alien species."*

The FEIS identifies in Chapter III that the beetle activity has left areas at risk for weed spread due to reduction in canopy cover because of significant tree mortality. It also discusses the risk of weed spread from various proposed activities including tractor logging, road construction and other ground-disturbing activities.

"2) *Prevent the introduction of such species; control them in a cost-effective and environmentally sound manner; restore native species and habitats; conduct research...and promote public education."*

On the Priest Lake Ranger District, these activities are carried out following guidelines established in the Priest Lake Noxious Weed Control Project EIS (USDA 1997). The Coeur d'Alene River Ranger District currently implements weed control activities under the guidelines of the Idaho Panhandle National Forests Weed Pest Management EIS (USDA 1989). The completion of a Noxious Weed Control EIS on the Coeur d'Alene River Ranger District will occur in the near future. The guidelines in the FEIS will be similar to those included in the Priest Lake Ranger District EIS. For the Newport District, the guiding document is the Colville National Forest Integrated Noxious Weed Treatment EA.

"3) *Not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species...unless the agency has publicly determined that the benefits of such actions clearly outweigh the potential harm."*

Design criteria established to reduce the risk of spread and introduction of weeds within the treatment areas are discussed in Chapter II - Features Common to All Alternatives. The risk of weed spread was analyzed under all alternatives. For the No Action Alternative, an increased risk of spread is predicted proportional to predicted stand-replacing wildfires from high levels of untreated fuels.

The DEIS states that timber sale contracts will include provision CT6.26. Where is the nearest area which heavy equipment can be cleaned off in this manner? Is the money for this purpose generated from the purchaser or from the Forest Service? If the Forest Service is funding it, where will it come from? Where will the money come from to seed roads that are decommissioned? Is this money guaranteed or a part of (only potential) KV money?

Response: Under contract provision CT6.26, all logging and construction equipment would be cleaned to remove all dirt and plant parts that could carry noxious weed seeds into the sale area. The required inspection would be carried out by qualified Forest Service personnel such as a sale administrator prior to move-in of a piece of equipment. While there is no pre-designation of washing sites specified in this provision, washing would not be permitted in sale areas. Inspection would be accomplished at a location agreed upon in advance by the Forest Service, with a 24-hour advance notification from the purchaser. The purchaser would pay for the cleaning of equipment when provision CT6.26 is used. The Forest Service makes no appraisal allowance for the cleaning of logging equipment in its timber sale contracts when this provision is included.

The cost of seeding roads that are decommissioned as part of a timber sale contract are incurred by the purchaser. The seeding of decommissioned roads, when included in Forest Service timber sale contracts, is not discretionary. It is a contractual obligation that the contractor must fulfill and that is inspected for compliance of contract specifications by a sale administrator or other qualified Forest Service personnel.

Roads that are not used for a timber sale are sometimes identified to be decommissioned. These additional roads are identified as sale area opportunities. The funding to decommission these roads is supplied either by KV dollars generated by timber sale receipts or by Congressionally appropriated dollars. Seeding is considered to be a key part of the overall prescription for decommissioned roads to accomplish project objectives such as weed prevention and erosion control. Service contracts for road decommissioning usually contain specifications for seeding. In some instances, however, Forest Service personnel would do the seeding.

Risk of weed spread and infestation is adequately covered in the DEIS and the Priest Lake District has had success in weed control through preventative seeding and road closures. We support these weed control measures.

Response: Thank you. We appreciate your comment.

The analysis of the effects of the project on the introduction of Noxious Weeds is deficient. Not considered is the effect of the intrusion of noxious weeds on the other vegetation of the forest. Likewise the discussion of the intrusion of Noxious weeds is not considered in the consideration of the Effects on Visual Quality Objectives.

Response: Discussion of the effects of noxious weed invasion is presented throughout Chapter III. The Priest Lake Weed FEIS, the Coeur d'Alene Weed DEIS and the Colville National Forest Integrated Noxious Weed Treatment EA are also referenced. These documents discuss the effects of noxious weeds in detail.

Noxious weeds are, by definition, plant species that render land unsuitable for agriculture, forestry, wildlife, and also cause impacts to water quality and natural diversity. Appendix C of the FEIS contains a discussion of the vegetative community diversity relating to noxious weed invasion and also displays a risk table for different vegetative types. The visual quality section of the Chapter III addresses the effects of noxious weeds.

Nowhere do we see a comprehensive discussion about weed impacts on hydrological function, forage suitability, loss of biodiversity, erosion, or impacts to soil biota. SPBA believes the Forest Service' response to the noxious weed problem is highly inadequate. We believe mandatory equipment cleaning for all activities should be required, The DEIS states (page 11-1 7) that mandatory cleaning will only be required in areas where noxious weeds have been treated or are considered to be weed-free. Cleaning should be required for ALL areas to avoid the introduction of new invader species. Infested

areas should not be regarded as "sacrifice zones." We also believe winter logging should be extensively mandated... particularly in areas highly susceptible to invader species incursions. Tractor logging is inappropriate in almost all areas. Finally, intensive monitoring (and control efforts) must be funded.

Response: Comprehensive discussion of the effects of weeds on the environment are found in the Priest Lake Noxious Weed FEIS, the Coeur d'Alene Noxious Weed Control DEIS and the Colville National Forest Integrated Noxious Weed Treatment EA. These documents are referenced in the analysis. In Chapter III and Appendix C, we discuss that the introduction and spread of noxious weeds can be attributed to human-caused disturbance and dispersal from vehicles and roads, livestock, contaminated seed, recreation, ineffective revegetation practices and timber harvesting.

As mentioned in previous comments, washing of all off-road equipment would occur for the selected alternative. The equipment cleaning would be done in all areas, whether pre-treated or weed-infested.

Exclusive use of winter logging also is not feasible for all areas because of the variability of snow conditions across the Forest and because of wildlife winter habitat considerations. The high cost of plowing and road maintenance in the back country also is a consideration in some areas.

NOXIOUS WEEDS (Newport District)

Individual Comments

Is the CNF Noxious Weed prevention environmental assessment a document which exists or the proposed one that has not been written yet? If the document does not exist, it cannot be cited for the purposes of this project, if the document does exist please send KRCG a copy. Why, on the Newport RD, will the Priest Lake Noxious Weed Control Project EIS be used for guidelines and prevention projects? True prevention strategies must be incorporated into this DEIS since there are none found in the 1998 Colville Weed Treatment EA nor in the IPNF EISs.

Response: The Colville Noxious Weed EA is an existing document. The Colville portion of Douglas-fir Beetle Project would use prevention strategies that have been developed on the Colville National Forest--not the Idaho Panhandle. These strategies are displayed in the FEIS. Your organization previously was mailed copies of this document.

Again in particular, the discussion of Noxious weeds and the Newport Ranger District uses data from the Coeur d'Alene River Basin which is not related to the Pend Oreille River or the Colville National Forest.

Response: You are right. Specific data and information for the Colville portion of the noxious weed analysis, however, are presented in Chapter III of the Final EIS.

What monitoring has been done for noxious weeds in the area [Newport RD] and what are the results?

Response: The Newport Ranger District conducts monitoring for noxious weeds. As an example, the Interdisciplinary Team (IDT) conducted a post-harvest review of the New Moon area; this review included monitoring of noxious weeds examining such potentially infested areas as road construction, harvest units, skid trails, etc. The review concluded that the weed prevention measures were effective. The results of this monitoring effort are documented in a report on file at the Ranger District.

THREATENED, ENDANGERED AND SENSITIVE (TES) PLANTS

Individual Comments

The summary DEIS does not address Threatened, Endangered, and Sensitive Plants (TES plants). The DEIS does address this issue very well. I assume a Summary FEIS will be published. Please include a short summary of TES plants existing and the expected impact on them, similar to what was done with the TES animals in the Summary DEIS.

Response: You are right. A summary of Threatened, Endangered and Sensitive plants is included in the Final EIS to correct this oversight.

If an area has not been recently surveyed for all potentially present Sensitive or Watch plants at the proper seasons of the year for best finding those plants, those surveys should be completed before resources are committed towards making the Sensitive plant habitat the home for bulldozers and skidders.

Response: The timeline for this EIS precluded any opportunity (a field season) to survey for sensitive plants. Some surveys from past activities have occurred in the project area, and are referenced in the EIS. The suitable sensitive plant habitat potentially affected by the proposed activity has been identified. The analysis of effects for Sensitive plants assumes presence of sensitive species in suitable habitat. Mitigation measures to protect sensitive plant populations, if located, are defined in Chapter II. These measures include either dropping units or modifying unit boundaries before the sale.

The need to survey, when we would survey, and where we would survey prior to ground-disturbing activities all have been identified.

The project would impact so many acres, and would impact so many acres where Sensitive plants are known or suspected to occur, proper impacts analyses would require a true population viability study. The DEIS does not reveal the Forest Service has enough information to do such a population viability study, also considering all other ongoing or planned activities on lands of all ownership.

Response: We disagree. Sensitive plant "population viability analysis" is not required by the Forest Plan or policy (FSM 2672.42). We are required to "...ensure viable populations [of sensitive species] throughout their geographic ranges." (FSM 2672.32) and to ensure that "...actions do not contribute to a loss of viability of any native or desired non-native plant species...or trend towards federal listing.." (FSM 2672.41). Field reconnaissance is the means to locate these rare elements of our ecosystem. Mitigation measures are then implemented to protect populations. We clearly state the assumption that protection of populations is an effective conservation strategy.

A Biological Evaluation and the supporting analysis of effects are the means to document that we are not causing a trend towards federal listing. Following the standards for Biological Evaluations (FSM 2672.42), suitable acres capable of supporting sensitive plants, based on the best available information, are identified as well as any known occurrences. The presence of sensitive plant species is assumed in unsurveyed, suitable habitat and potential affects, including cumulative effects, are analyzed based on this assumption. We clearly state in Chapter III, that without mitigation [including surveying and protection] "there exists a high likelihood of adverse effects to [sensitive] plants in suitable habitat..." Surveys of the suitable habitat potentially affected by the proposed action would occur to validate this "presence" assumption. We are committed to surveying all suitable acres for which the proposed activities could affect sensitive plants and populations would be protected when they are found. In our experience, actual rare and sensitive plant occurrences are found only on a small percentage of what is considered suitable habitat. Ongoing activities on non-Federal lands (part of cumulative effects analysis) are addressed in the Environmental Consequences section.

The DEIS mentions coastal disjunct species (III-163). Has the Forest Service created maps of the habitats on the IPNF that contain these coastal disjunct species?

Response: Yes. There are maps showing occurrences of all documented rare and sensitive plants on the Idaho Panhandle National Forests. Geographical Information System (GIS), 'layers' created and maintained by the Idaho Fish and Game, Idaho Conservation Data Center (ICDC), Boise, Idaho, are used to record the location of existing (known) rare plant occurrences, including coastal disjuncts, on the Forests.

For various projects including this EIS, maps or tables showing habitat that is considered highly suitable to support rare and sensitive plants are generated, and overlaid or compared with proposed activity areas to identify areas where there are potential conflicts between existing occurrences (from the ICDC database) or potential sensitive plant habitat, and the proposed activity. The professional judgement and experience of the journey-level Forest Botanist, the District Botanists and other botany personnel is also important in identifying highly suitable habitat for sensitive plant species that require field reconnaissance.

The DEIS promises post-NEPA surveys and mitigation measures, but neither the public nor decision maker can judge the efficacy of such mitigation since their status now is only vague promises.

Response: We disagree. Chapter II specifies design criteria such as surveys and specific mitigation requirements to protect and maintain populations. We assume presence in unsurveyed suitable habitat. The surveys would validate this assumption and trigger mitigation to protect populations prior to ground-disturbing activity. We clearly state in Chapter III that protection of populations is assumed to be an effective conservation strategy. These are not vague promises--this is a commitment to the public to ensure conservation of these rare species as well as meeting the intent of law and policy concerning sensitive species.

The results of the surveys, their location, what was found, and how occurrences were protected all would be documented and placed in the project file when completed. Upon completion, this information will be available to the public.

The DEIS states that cattle grazing has affected Sensitive plant populations, yet the significance of this cumulative impact is not disclosed.

Response: You're right. Grazing was mentioned as a past and current activity affecting one of the sensitive plants, Henderson's sedge. This is discussed further in the Final EIS.

TES PLANTS (Newport District)

Individual Comments
The discussion of Threatened, Endangered and Sensitive Plants pertaining to the Colville National Forest refers only to the situation in the Idaho Panhandle National Forest with no data to show how this applies to the TES plants of the Colville National Forest.

Response: We appreciate your comment. Specific data for the Colville portion of the sensitive plants analysis is presented in the Final EIS.

[I request] Comprehensive and conclusive evaluation of effects on Threatened, Endangered and Sensitive plants and species proposed for listing on the Newport Ranger District, as well as comprehensive effects of noxious weed intrusions on all aspects of the ecosystem likely to be harmed.

Specific data and information for the Colville portion of the listed sensitive plants analysis is presented in Chapter III of the Final EIS.

Scenery

Similar Comments There were 41 general comments about the visual impacts of the project. Eight of those comments expressed concern about negative effects of the project on scenic values. In letter with twenty-eight signatures, one of the comments stated that helicopter logging would leave a visually acceptable job

that the public would accept. Three people were concerned about property values. One person said removing the dead and dying trees would improve the scenery, and one person commented that a bug-killed forest is not pleasant to look at.

Response: We have no methodology to measure direct effects of scenery management on property values. Property values in North Idaho have continued to rise over the past three decades with no evidence that land management activities have reduced the demand for houses and property.

We certainly recognize the high regard that forest users place on scenic integrity. By any definition, the areas proposed for harvest, however, cannot be characterized as pristine. As discussed in the existing condition, land management activities have occurred on both National Forest and private lands. The effects of past fire suppression and exclusion also have affected the scenic character.

A discussion of the existing landscape character and a discussion of the effects of the alternatives, including the No Action Alternative, is included in Chapter III. Chapter II includes several specific mitigation measures which are recommended in retention and partial retention VQO areas. As one comment stated, helicopter logging minimizes ground disturbance and eliminates roads, and thereby maintains scenic integrity to a higher degree.

SCENERY (Coeur d'Alene River District)

Individual Comments

The fact that areas of MA 9 (prohibited from logging in the Forest Plan) in the Hayden Analysis Area are proposed for logging indicates a very detailed visual quality analysis should be prepared--for this area especially. We are concerned the Forest Service is preparing to ignore visual quality objectives, because they claim "Openings created in the timber by harvest, in effect, would be virtually the same as created by natural processes" (III-258). Even when we are told VQOs will be met, we are not really assured by such claims. There are no visual simulation displays that attempt to show comparisons between existing and projected conditions under the various alternatives.

Response: Logging is not prohibited in Management Area 9 (MA 9) designated areas as described in the IPNF Forests Plan. Such areas were described as "...lands physically unsuited for timber production, and lands capable of timber production but isolated by [areas of non-forest lands] or nonpublic ownership." There is no unique Visual Quality Objective (VQO) designation for MA 9. Areas of retention, partial retention, modification, and maximum modification were identified in the IPNF Forest Plan. The analysis of effects for MA 9 lands used the VQO designated in the Forest Plan.

Scenery was identified as an issue in Chapter II. The analysis of effects, including a description of the methodology, is included in Chapter III.

The units proposed for the north face of Canfield Mountain are probably the most sensitive visually for the entire proposed project. For that reason, we constructed a computer-simulated photograph of how these units would appear in Alternative D (you can see this photo in the Record of Decision and Summary package). These units lie in middleground views. The regeneration units would be apparent as logged areas. The beetle mortality in these proposed regeneration harvest units is very severe and would create large openings in the timber in the No Action Alternative.

Timber harvest cannot exactly duplicate a natural occurrence but certain proposed logging techniques do mitigate the effects to scenery. Use of helicopters would eliminate the need for road construction, which isone of the biggest visual impacts. Helicopter logging and planned burning that follows defensible lines would help create irregular cutting unit boundaries instead of straight edges and geometric shapes. Green trees of species other than Douglas-fir would be retained in these units and planned burning would be designed to maintain these live trees. The computer-simulated effects appear not to be severe to the overall scenic condition of the landscape, which includes private developments as well.

No more clear cuts which are visible from either the lake or Hwy 95.

Response: There are no clearcuts proposed in this project (see terminology on the "Explanations of Terminology" card that accompanies the FEIS). While the selective harvest units located on the upper western slopes of Mt. Coeur d'Alene would be visible from the western shoreline of the lake, these units would blend in as background views with the existing landscape character.

SCENERY (Priest Lake District)

Individual Comments
The rationale for reducing VQOs in the Binarch RNA area on III-470 is not biologically or aesthetically acceptable.

Response: Research Natural Areas are identified as Management Area 14 in the IPNF Forest Plan. The Visual Quality Objective (VQO) established for Management Area 14 in the IPNF Forest Plan is preservation. As stated in the scenery analysis in Chapter III, the boundaries of the Binarch RNA were established after the approval of the Forest Plan in 1987. The 3,200-foot contour interval was used as the upper boundary. The VQO of preservation would continue to be specified for the Binarch RNA. The VQO maps would be corrected to show the boundary of the Binarch RNA as specified in the Establishment Record, and the area outside the boundary would be partial retention and modification to be consistent with the Forest Plan. This correction also would be consistent with the existing condition of the area lying outside the RNA boundary.

Our home enjoys a beautiful view of the north facing slope of PeeWee Ridge to the south and west of our property. We would object to any future plans to log this steep slope other than to do very limited selected removal by helicopter. It is too steep to build more roads and the visual impact of cable systems would be unacceptable to us. We also have concerns for the cutting units planned over on the SW side of PeeWee Ridge.

Response: Unfortunately, there are some stands along Peewee Ridge which are infested with the bark beetle. Under any alternative, including the No Action Alternative, there would be effects to the scenic condition. These effects are summarized in Chapter III.

There is one unit (Unit Q20) located in Quartz Creek on the north-facing slope of Peewee Ridge. Appendix D shows the treatment and harvest system for this 19-acre unit. In all alternatives, this unit would be a salvage harvest in which the dead and dying Douglas-fir would be removed. A skyline logging system would use the existing road in this stand. Helicopter logging was not specified for this unit because of the existing road. Because of the limited timber removal in this unit, the logging would meet a VQO of partial retention and would not be readily evident from your location.

For both Alternatives D and F, the area adjacent to Unit 20 was identified as being high-hazard because of the number of large Douglas-fir. Currently, this area (Unit Q20a) is not infested. If the stand becomes infested, however, it would be salvage-harvested by helicopter in these alternatives. Refer to Appendix D for more information on this unit.

Bark beetle-infested stands are also located on the south face of Peewee Ridge. Because of the drier exposure, there is a higher component of ponderosa pine in these stands than on the north-facing slope and a large component of infested Douglas-fir. One of the objectives of treating the infested stands is to reintroduce fire into these stands and to maintain the existing ponderosa pine component and enhance its composition by planting the regeneration units with this species. For all action alternatives, three units (Q4, 6, and 8) are located on this face. Units Q4 and Q6 are regeneration harvests and Q7 is a selective harvest (improvement cut) in all action alternatives except in Alternative E, which would include all three units as salvage harvest. All three units would be helicopter yarded because the units are visible from several locations on Highway 57 as well as other considerations. Helicopter logging also would allow for

the creation of irregular cutting unit boundaries which eliminate straight edges and geometric shapes to reduce the visual impacts.

SCENERY (Bead Lake)

Individual Comments

I encourage comprehensive and accurate review of Visual Quality and Retention of Visual Objectives in the Bead Lake Watershed with emphasis on year round Scenic Landscape.

Lastly, relating to Visual Quality and retention of Visual Objectives in the Bead Lake Watershed of the Newport Ranger district the DEIS is full of inconsistencies and contradictions, leading to conclusions of inadequacy of the DEIS. The Bead Lake Recreation Area is designated as a Level 1 area, one of highest sensitivity. The Sense of Place and Scenic Integrity is High or Very High at Bead Lake. Yet the DEIS also claims the Scenic Integrity in the analysis area is Moderate and therefore supportive of selective harvesting. Overlooked altogether in the analysis of Visual Absorption Capability in the Bead Lake Watershed is the effect of skid trails on the winter landscape. These trails will clearly degrade the landscape character and scenic integrity of the watershed with the highest sensitivity, sense of place and scenic integrity.

As a Bead Lake property owner, I am distressed by your preference for Alternative D which, I believe, holds a risk for substantial impairment of Bead Lake's scenic properties and water quality. No other Alternative targets the Bead Lake basin for such a high level of intrusive action.

We have considered the consequences of allowing the Douglas Fir bark beetle infestation to run its course in the basin of Bead Lake (Alternative A) versus the various timber harvest alternatives. We are of the very strong opinion that no timber harvest be allowed in the basin of Bead Lake, anywhere where the cutting or road reconstruction would be visible from the surface of the lake or any of the homesites or the boat launch. We would remind you also of agreements with the Forest Service and the BLCWA in this regard.

Response (to the previous two comments): Although the Bead Lake basin is rated as high sensitivity and high integrity, it is only a part of the analysis area. The analysis area as a whole averages to a moderate scenic integrity rating.

The majority of proposed harvest is not in view of Bead Lake. There would not be large openings in the seen area for Bead Lake. The units that would be visible from Bead Lake would be helicopter or skyline units, and therefore skid trails would not be created. Using the mitigation measures described in the EIS, the activities would meet Forest Plan direction for visuals.

There would be no harvest in the buffered zone around Bead Lake per the agreement between the Forest Service and the BLCWA.

For more information, refer to the Scenery section, analysis of effects, including a description of the methodology, in Chapter III.

Likewise the discussion of the intrusion of Noxious weeds is not considered in the consideration of the Effects on Visual Quality Objectives...

Response: There should be no change to Visual Quality Objectives as a result of noxious weeds. Some people think that "weeds" are very pretty, regardless of whether they are native and beneficial or noxious invaders. The weeds exist and will spread particularly along open roads, whether this project is implemented or not. The planned prevention method that we would be using (seeding all disturbed soil) would be effective at mitigating the spread of noxious weeds in harvest areas. There are no known A or B designate weeds in the analysis area.

Wildlife

THREATENED, ENDANGERED AND SENSITIVE SPECIES

Individual Comments

The value of areas "outside of the recovery area where isolated pockets of high quality grizzly bear habitat is located or where reliable sighting have occurred recently" (III-420) for grizzly bear recovery is also glossed over in the DEIS's approach for grizzly bear impacts. "The estimated open road density is about 3.3 miles/mile. This figure does not take into account motorized trails that are present in the analysis area" (III-204). We wonder if any analyses of grizzly or any wildlife security consider off-road motorized traffic.

Response: Most of the project area lies outside of areas that have been designated for the conservation and recovery of the grizzly bear (Grizzly Bear Recovery Plan 1993). Outside recovery areas where grizzly bear is important, but not the primary emphasis, we are directed to accommodate grizzly bear needs with other land use activities, if feasible, but not to the extent of exclusion of other uses (Interagency Grizzly Bear Guidelines 1986).

We take into account all motorized travel routes, including high use trails, in analyzing effects on grizzly bear security and core within recovery areas. The analysis did not consider off-road motorized traffic because it is unpredictable, and likely negligible because of dense vegetation cover.

Grizzly bear security habitat will be slightly reduced through proposed harvest activities in the Kalispell-Granite and Lakeshore Grizzly Bear Management Units. The grizzly bear population in the Idaho portion of the Selkirks is small and we have concerns that even slight reductions in security might impact population recovery. Human caused mortality appears to be the single greatest cause of mortalities among Selkirk grizzly bears. We recommend taking measures to further reduce project impacts on grizzly bear security. For example, the document suggests that line of sight will be increased by regeneration harvest, potentially reducing grizzly bear security. Retaining sight buffers within regeneration units could reduce this impact. Other concerns we have with security include the condition of reconstructed roads following project activities. The DEIS is not clear as to how many roads or miles of roads proposed for reconstruction are currently brushed in or otherwise physically not drivable with motorized vehicles. We recommend those roads that are currently not drivable be catalogued, and that actual accessible road mileage following sale activities be similar to or less than what is currently present in the sale areas.

The impacts on grizzly bears have certainly not been adequately evaluated. There are far too many roads in grizzly bear habitat already. Logging and road building within the Selkirk Grizzly Bear Recovery zone portion of the proposed project should not be allowed. More roads and more access will create additional pressures on a population that a federal judge recently said was, "endangered almost by definition." Please do an adequate and proper analysis of the potential impacts to all threatened and endangered species.

Response (to the previous two comments): Cumulative effects analysis allows for slight changes in security as long as it remains above 70 percent for the Kalispell-Granite Bear Management Unit (BMU) and no net decrease for the Lakeshore BMU. There is no change in security for Kalispell-Granite BMU and an increase in security for the Lakeshore BMU (see effects analysis).

The analysis shows a net decrease in open road miles and improved closure effectiveness on all roads including reconstructed roads as you recommend (refer to "Mitigation Measures" in Chapter II).

THREATENED, ENDANGERED AND SENSITIVE SPECIES (Newport District)

Individual Comments

How much unroaded area is being proposed for entry? Please analyze how grizzlies will be affected by the loss of this seclusion habitat.

Response: No unroaded area is being proposed for entry. We would not be affecting seclusion habitat or unroaded areas. Seclusion habitat requirements for grizzly relate to the Recovery Areas and we would not be in a Recovery Area. Grizzly habitat and the effects of the project will be addressed in the Biological Assessment.

How close is this area to the LeClerc GBMU and are there any connective corridors available? Please include maps in the EIS to reference these areas.

Response: The GBMU is 12 miles to the north of unit 34a, the most northern unit in this project. Limited connective corridors are available now because of mixed ownership & past logging operations, but they do exist and are usable, as was evident with the young male grizzly who was killed on the Kalispel Reservation last fall. This bear had to use corridors from the north to access the reservation. This will also be addressed in the Biological Assessment.

The biological assessment and wildlife report have narratives, rather than maps, describing the travel corridors for many different species, including grizzly bear.

Are private land developments going to significantly adversely impact national forest lands in the area and the recovery of the grizzly in this area?

Response: If by "development" you mean homes, ranchettes, roads and farming, there is always some impact to wildlife, including grizzly bear. The Selkirk and Cabinet-Yaak grizzly populations were found to be stable. Recovery zones were intially designated to meet all the needs for a recovered bear population. The Kalispell-Granite and Lakeshore BMUs consist of 96% and 86% federal lands (respectively) and are therefore not significantly affected by private lands.

EFFECTS OF PROJECT ON SNAGS

Individual Comments

Any snags left on site (presumably for the sake of wildlife habitat) during fuelbreak construction will likely be felled by firefighters during fireline construction.

Response: Retention levels in the "Mitigation Measures" in Chapter II take into account the loss of some snags due to management activity (Bull et al. 1997, PNW-GTR-391; IPNF Forest Plan 1987 Appendix X); and were devised to retain snags with the greatest likelihood of long term retention. Wildlife marking guides would stress leaving snags that are least susceptible to loss from management activity (including prescribed fire, blowdown and firewood gatherers).

Snag retention for wildlife is clearly secondary to protection of human life, and snags that pose a hazard would be cut down. However, wildland fire fighters are aware of the value of snags to wildlife, and cut snags only when necessary. There is a safety reason for this as well, because falling snags is itself a hazard, sawyers do not do it unless it is considered necessary.

The DEIS at II-20: Wildlife Tree Retention... It makes absolutely no sense that snag and green tree retention objectives for one area can be met in another area! Snags and green trees in one area can only serve the habitats they're in--not for the habitats nearby! We are also skeptical that someone will actually be documenting the presence in "surrounding stands."

Response: Within guidelines and allowances for scale, snag levels in one area can be used to meet objectives for snag retention in another area. Clumping snags for retention is an accepted practice with known benefits (e.g. easier to protect during management activities). Bull et al. (PNW-GTR-391 1997) recommends providing snags in every 5 to 25-acre stand within species' home range sizes. The mitigation measures in Chapter II which address snag retention are consistent with recommendations in scientific

literature concerning levels and distribution of snags. Mitigation measures for the project were modified from those in the DEIS to reduce the size of the area within which snag retention levels must be met (i.e. from 5 - 25 acres to 5 acres) to address the concern expressed in this comment and to further reduce potential for any adverse impact from the loss of snags. The biologists will communicate with marking crews and monitor snag retention during project activities to see that the intent of the mitigation measures are being met.

Please perform a good, close analysis of snag and snag recruitment monitoring done for previous timber sales in the analysis areas, so that a better understanding of likely cumulative effects can be achieved.

Response: Partially in response to this and other comments, additional discussions regarding snags were added to the FEIS. The mitigation measures of Chapter II have been modified to further avoid the potential impacts on snags and cavity habitat and to clarify the features and their intent. Mitigation measures of the project were developed based on scientific literature (e.g. Bull et al. 1997) to ensure the retention and selection of snags at a level and distribution which has been shown to support at least viable populations of species which use snags and logs.

Cumulative effects are considered in the analysis (FEIS-Chapter III). Snag retention levels include compensation for areas with existing low snag levels - in part to address the concern regarding cumulative effects expressed in this comment. The analysis for snags (including cumulative effects) is based on scientific literature and is done at a level commensurate with the project (including mitigation measures), the relevancy of the issue to the project and the potential for impacts.

The DEIS at II-20 also doesn't explain what "the largest DBH size class" means. A minimal commitment would at least designate the very biggest trees for retention to meet these numerical targets.

The specification that calls for leaving snags "in the 15 inch class" is inadequate... Although, on the CNF, there has been an upper diameter limit of 21 inches on green tree sales, to maintain some older trees, we feel that this limit should be used for recently dead or dying trees on this sale as well.

Response (to the previous two comments): The largest DBH size class does mean designating snags from among the very largest trees present. However, the mitigation measures (Chapter II) also consider other aspects of snag retention (e.g. species and distribution). The requirement in the FEIS is to retain the biggest snags present.

The DEIS at II-20: To compensate for past losses of snags...The DEIS should define "subdrainage" for this purpose. The calculations referred to should be placed in the project file and summarized in the EIS. Will the calculations be based upon timber stand data base information (likely far out of date in terms of snag numbers) or upon direct field surveys?

Response: Existing regeneration units with inadequate levels of snags and areas next to roads with reduced snag levels (approximately 50 meters each side) were identified by wildlife analysis area (changed from subdrainage) and used to determine the need for additional snag retention levels in proposed harvest units. This information is included in the project file. The calculations are not based on timber stand data base information. The areas identified for increased snag retention levels (to compensate for past losses of snags) are based on the location and type of treatment in past harvest units, the presence of open roads and prudent assumptions regarding low snag levels next to open roads (e.g. losses due to firewood gathering) and in past harvest units. Existing snags would be left, unless they are safety hazards.

The reality of the situation is that there are some surviving snags in past regeneration units and areas within 50 meters of open roads, as well as snag habitat that has been impacted in other harvest areas and areas associated with closed roads. Without site specific information on snag densities across the landscape, it is reasonable to assume that compensating factors should provide a conservative analysis. In addition, many patches of snags would remain unharvested both in and outside the project area (refer to map comparing Alternatives A and D in Wildlife, Chapter III).

There are an additional 3,753 "high hazard" acres on the Priest Lake District, 512 acres on the Newport District and 14,497 acres on the Coeur d'Alene District that would remain unaffected by the proposed action. There are also additional acres that have gone undetected. The beetles are expected to continue to expand and kill live trees, creating more pockets and areas with high snag densities. Also see the discussions on Black-backed woodpecker in Chapter III for patch sizes of untreated high risk areas.

Large clearcuts also significantly reduce the amount of available snag habitat in a localized area.

Response: There are no clearcuts proposed in this project (see terminology on the "Explanations of Terminology" card that accompanies the FEIS). Please refer to the response above regarding levels of snags in regeneration units and to Chapter II, Mitigation Measures.

The opportunity for retaining snags on all districts seems to be getting lost in the urge to clear-cut. We would recommend that you not push the 40 acre limit and that you take the opportunity to retain as many snags and LOD as possible. We would recommend that 20 to 30 of the largest snags be retained/acre and that 20 of the largest DF or other seral species be retained as green trees/acre. Of course, to retain these snags, they will need to be away from roads or the roads used will need to be closed to preclude firewood gathering.

Response: Please see the responses to the second and third comments in this section on snags.

We would argue that not only species composition, structural age class, and fuel loadings should be considered by the Forest Service in formulating management prescriptions relative to historic conditions but a host of other variables as well. This would of course include the very significant departure from historic conditions with regard to snag densities, patterns, decay class, species composition, and other physical attributes of snags. Due to past clear-cut logging and firewood cutting along the plethora of open roads on the IPNF and Colville National Forests, snag densities are well below historic conditions in many areas. This is particularly true for large diameter snags and the most valuable snag species like western larch and ponderosa pine. We assume that managers are familiar with the admonitions contained in the recently released (draft) SOURCE HABITATS FOR TERRESTRIAL VERTEBRATES OF FOCUS IN THE INTERIOR COLUMBIA BASIN: BROAD SCALE TRENDS AND MANAGEMENT IMPLICATIONS. Throughout this multi-hundred page document warnings abound about the deleterious consequences of departures from historic snag conditions. Over and over, managers are advised to "Retain existing snags, particularly if >53 cm (20 in) and provide measures for snag replacement. Review existing snag guidelines or develop guidelines that reflect local ecological conditions and address snag numbers, diameter, height, decay class, species, and distribution. Maintain snags at higher than historical levels, to restore loss in previously harvested areas."

Response: Detailed information specific to the IPNF regarding current snag levels and historic conditions is not available. The mitigation measures (Chapter II) for the project are based on existing knowledge and scientific literature; and do address numbers, diameter, height, decay class, species and distribution. The guidelines were developed to incorporate local conditions as much as practicable and to compensate for past losses where appropriate. The largest snags would be left. Portions of this comment were addressed in previous responses in this section.

It isn't a question of retaining viable population numbers of any given species... it is a question of retaining an appropriate distribution of (historic) functionality across the landscape. One can maintain viable numbers of any given species without assuring the viability of their (ecological) function at an appropriate spatial distribution. Primary cavity excavators and various insectivores for instance should be viewed as a functional component of a given area, not as separate entities divorced from the ecological role they perform. It seems intuitive that if an area is deprived of the function insectivores perform, for example, by loss of appropriate habitat, then that area is not functioning as it should. The Forest Service may argue that current guidelines adequately address this issue. SPBA maintains that the emphasis is still on species viability... not the viability of the function species perform in any given area and at all relevant scales. As well, current retention guidelines appear to ignore inter-species competition for limited habitat and thus can not provide adequate habitat for the entire suite of species that would be expected to inhabit a given area. We urge the Forest Service to re-assess the project (snag retention) guidelines for the Douglas fir Bark Beetle EIS.

Response: We agree that snag retention is important from the standpoint of functionality. Snag retention guidelines (mitigation measures) are based on literature (Bull et al. 1997) which addresses a wide array of species and their use of snags and logs. Dead trees provide habitat for primary excavators (e.g. woodpeckers), secondary cavity users (which use snags for nesting, denning, or shelter) and other species which use dead trees (e.g. bats use space behind the bark).

It is not the intent of this project to remove all pockets and patches of dead trees created by the Douglas-fir bark beetle outbreak. Concentrated pockets of snags would remain untreated and unaffected, scattered across the landscape to help maintain the functional role of these patches (refer to map comparing Alternatives A and D in Wildlife, Chapter III). The progress of the bark beetle epidemic will continue to kill live trees and provide high snag numbers, both inside and adjacent to the project area. Also refer to our response to the fifth comment in this section on Snags.

Despite the Forest Service's own documented advice and despite recent research suggesting the need for dramatically increased snag retention standards (see... Responses of Cavity-Nesting Birds to Stand-Replacement Fire and Salvage Logging in Ponderosa Pine-Douglas-Fir Forests of Southwestern Idaho, RMRS-RP- 11, Sept. 1998) the agency is still proposing to log large diameter dead trees and (in our opinion) is failing to adequately address the issue of past snag reductions in previously managed areas. For instance: on page 11-20 of the EIS it states... "in subdrainages with 25% to 50% loss of snags, retention numbers would be increased by 25%." In other words, if 50% of the snags are "lost" in a subdrainage, the Forest Service proposes to increase snag retention numbers by only 25%. We maintain this is an inadequate response to the problem. The question naturally arises... (in applicable areas).. Why is the agency removing large diameter Douglas fir from some areas that are already suffering from a dearth of snags and proposing to rectify situation by retaining less than what is needed for full (snag) habitat recovery? On page 111-409 of the EIS it states..."Once large snags are removed, it may be 100 years before a regenerated stand can grow new trees and produce snags large enough to meet the needs of most snag dependent wildlife species." We see the issue as being one of basic ecosystem function. If keystone species such as primary cavity excavators are removed or reduced in an area due to loss of habitat, a cascading series of actions could likely result which might have potentially profound and long-term consequences to the forest environment.

Response: See our responses to previous comments in this section on Snags.

For the pileated woodpecker: There is no direct population or habitat information available on historic numbers of pileated woodpeckers. From the forest structure information, it can be inferred that there were likely more pileated woodpeckers historically than there are currently. The number of large snags are also generally believed to be fewer than historical numbers, because of the disproportionate amount of timber harvesting done on older stands, and the decreased amount of older stands remaining from stand-replacing wildfires in the early part of the century (III-199). Yet a major dead-tree removal plan such as the DF Bark Beetle proposal still doesn't warrant quantitative analysis of important habitat components such as 30" DBH trees for nesting! (See Warren, 1980 as cited in the DEIS under Wildlife references, Vol. II). The analyses merely assume that design features (which OSHA regulations will trump anyway) will maintain enough cavity nesting habitat.

Response: See our responses to previous comments in this section on Snags.

EFFECTS OF PROJECT ON HABITAT

Individual Comments

It would seem to me that even trees that are infested would be better left standing as homes for small birds, and those trees that fall would help hold soil in place to prevent runoff.

Response: Refer to the responses above on snags. On the Newport Ranger District, all live trees over 21" diameter would be left except for incidental snags cut for safety reasons. These trees over 21" would eventually provide large snags for wildlife habitat.

The DEIS makes such statements as "The majority of the fisher and marten habitat is located within the vicinity of jasper Mountain and From Quartz Mountain to Pee Wee Ridge" (III-448) and "The majority of the suitable goshawk habitat lies in the Analysis Areas 3 and 4" (III-449). But the DEIS does not clearly disclose how significantly these important areas would be depleted by proposed activities, or cumulative impacts of other approved or ongoing proposals. "The no action alternative produces the greatest amount of habitat loss from existing condition, at 680 acres, or 7% of existing suitable habitat" (III-455). This suggests that the type of logging activities proposed for this area will actually improve goshawk habitat. Please cite the scientific research that supports such a claim.

Response: As expected after the DEIS, greater accuracy and precision in the analysis of these species is present in the FEIS. Errors in numbers you cited have been corrected. Cumulative effects of other actions are included in the analysis. The No-Action alternative includes the effects of the recent beetle infestation--these effects also apply to untreated infested areas in all of the action alternatives.

Also, some stands that were suitable for goshawks because of the size of trees in the overstory are no longer suitable because of the dense understory. The dense understory is a result of fire exclusion in many cases. Several goshawk territories on the north zone are in stands that have been logged in the last few decades, and some nests are at the edge of skid roads where flight paths are unimpeded. Conversely no known goshawk nests on the north zone are in stands that have extremely dense understory with large overstory trees. Thus, there is a possibility that thinning from below and subsequent stand treatments (such as burning) could improve overdense stands for goshawks.

There is little analysis of effects on interior forest. The DEIS neglects to realize that areas where home ranges for members of the same species are contiguous not divided up by roads and clearcuts are rare in the larger landscape within and surrounding the heavily logged and roaded Analysis Areas. The lack of discussion on fragmentation and habitat connectivity makes us wonder where the "ecosystem" is in "ecosystem management." There exist many rare species which need relatively large areas of undisturbed, unfragmented habitat for long-term persistence of viable populations, and the DEIS seems to deny the habitat in the Analysis Areas could ever have any value for providing such refugia or corridor habitat. For genetic interchange to occur, there must be useful habitat closely and evenly distributed for viable populations to persist in the larger landscape area. For wide-ranging species, there must be linkages which still have a threshold level of habitat value (feeding, security, etc.) for the individuals to even venture, so they may eventually find themselves in other core population areas and thus complete the genetic interchange.

Response: The beetle is causing the vast majority of the fragmentation (refer to map comparing Alternatives A and D and fragmentation discussion under the "Characterization" section of Wildlife, Chapter III). Although the term "interior forest" was not used in the DEIS, the lynx analysis states that lynx avoid openings in forests (p. III-413), and fishers avoid habitats with less than 50% canopy (p. III-415). The habitat models used to determine which habitats are suitable for these species take that into consideration. The FEIS includes a mitigation measure which defines buffer zones around old growth and riparian habitats to maintain their integrity and connectivity, thereby protecting interior forest in old growth and riparian habitats. Replacement old growth stands have also been identified (see project files).

The issue of fragmentation is best addressed at larger scales than project level. For wide-ranging species, it becomes an issue when species become isolated from one another, thereby preventing genetic exchange and possibly leading to a risk of reducing species viability. This has occurred at larger scales when large areas of natural habitats have been permanently converted from grasslands or forests to agricultural uses, cities, freeways, etc. These changes are not evident in the project areas, especially when the forces of succession are constantly in motion. It is unlikely that roads fragment habitat to the extent they isolate these populations. The forests of north Idaho evolved under a heavy influence of fire and insect and disease disturbances, thus resulting in fragmentation.

Providing large, undisturbed areas for wide-ranging species will be addressed at the broadscale in the Columbia Basin and IPNF Geographic Area Assessments. Also, open road densities are being reduced in Integrity Areas (areas of quality habitat and security). See the effects analysis in Chapter III.

Areas of essential habitat for sensitive, threatened or endangered species should be left alone. Any attempt to fix them will probably result in more harm than good.

Response: Each threatened, endangered or sensitive species has specific habitat requirements. A "hands off" approach to wildlife management is detrimental to some species. Proactive management to ensure that important habitat components are present over time is more likely to ensure species' viability than to do nothing. Habitats are not static. They are constantly changing as forests grow older and denser, and as fires, insects and diseases occur. Plant species composition in habitats changes over time. Fire exclusion changes natural succession processes. Without fire or thinning, many forest habitats become so dense they are unsuitable for goshawks, flammulated owls and woodland caribou. Some species such as lynx need a combination of young and old forests for their foraging and breeding. Shrubfields and old clearcuts are important foraging areas for grizzly bears, but over time they develop into older forests which produce less forage for bears. Design features of this project and mitigation measures were included in the FEIS to maintain viable populations of sensitive, threatened and endangered wildlife.

ROADS EFFECTS TO WILDLIFE

Individual Comments

We are concerned that the improved access which will result from new and, perhaps more importantly reconstructed, roads will contribute to slower elk herd recovery rates, negatively affecting our ability to meet Department goals.

Response: Please refer to the features of the alternatives in Chapter II for Coeur d'Alene District in the final EIS (Chapter II design features - access management). This section describes how roads would be managed during and after the sale. Many reconstructed roads would have more effective closures after the sale. This project also has features that provide for obliteration of existing roads, resulting in decreased open road densities for the long-term. Please refer to the calculations of the elk model in the final EIS (Chapter III - Coeur d'Alene District, Wildlife)

The DEIS also completely ignores the issue of roadless areas, which form core habitat for rare species which need relatively large, undisturbed areas. The DEIS merely assumes that, since no inventoried roadless areas would be logged or roaded, the issue of core habitat is not relevant to the discussion. The DEIS doesn't disclose if there are unroaded areas in the Analysis Areas which are immediately adjacent to roadless areas, which would best be added to the inventoried roadless areas. Will any such unroaded areas be logged? The EIS should include maps of all roadless and unroaded forest and adjacent private land unroaded areas. We oppose logging of any unroaded area based upon the biological significance of remaining unroaded areas and for their importance a refuge for wildlife.

Response: Effects of roads on fisher, lynx, wolverine and pine marten for all alternatives are described in Chapter III. The "Roads and Security" and "Elk" sections further discuss road effects on wildlife in each analysis area. Maps of roadless areas are in the project file. No unroaded areas next to roadless areas would be entered.

With the extremely high road density in all Analysis Areas proposed for logging, it is hard to believe that something designated as a High Integrity Area (III-204) for wildlife is proposed to get more road construction. "Not all of the secondary road closure data is fully accurate at this time" (III-209). We thus doubt if any analysis on wildlife security based upon road closure data is valid.

Response: There have been revisions between the draft and final EIS reducing the amount of roading that would occur in the High Integrity Area. Please refer to the wildlife analysis Chapter III for effects determination of this area. This project provides for features that call for several road obliterations within this area, trending toward reduced road densities, and a long-term benefit for wildlife. The updated open road density data is included in the final EIS within Chapter III of the Coeur d'Alene District Wildlife analysis.

The DEIS says "Security design features are likely to provide more than adequate protection from mortality risk factors, because wolverines are likely to be transients in the portions of the Priest Sub-Basin that the proposed action areas occur in" (III-416). Yet in other places, the ineffectiveness of road closures' keeping out ORV users is mentioned. This also ignores the fact that even closed roads provide much easier access for hunters, trappers, and--important for wolverines and other species such as pine marten, fisher and lynx--snowmobiles.

Logging roads contribute to poaching by providing easy access for poachers.

RESPONSE (to the previous two comments): The intent of the project is to reduce mortality risks to wolverine and other forest carnivores through reduced open road densities and improved effectiveness to control motorized access on closed roads. (See lynx analysis and mitigation measures - access management). The objectives for lynx in the Draft Lynx Conservation Assessment and Strategy are to continue to trend below 2 miles/square mile of open roads and no net increase where we are currently below 2 miles/square mile.

In the Priest Lake project area, all temporary roads built would be obliterated, are short-term, and would not be available for ORV use. To address the risks to lynx from snowmobiles, we would be following the Draft Lynx Conservation Strategy allowing no increase in groomed snowmobile routes or play areas.

Improved effectiveness would also make these closed roads more difficult to be accessed by hunters and trappers because of obliteration work (i.e. removing culverts, recontouring slopes, water barring, etc.).

Controlling access on obliterated roads would eventually result in many road prisms becoming choked out by vegetation, blocking all access in a relatively short period of time.

The DEIS's analyses are far too brief on the very severe displacement factor on wildlife such as pine martens, fishers, wolverines and lynx of snowmobiles in the various Analysis Areas. This further highlights the failure of the Forest Service to formulate travel plans which consider impacts on wildlife. And where logging activities would occur in winter, the DEIS does not adequately consider how those activities would also displace wildlife.

Where is all the wildlife supposed to go that lives in these forests?

RESPONSE (to the previous two comments): We recognize that there are possible effects concerning displacement and disturbance associated with proposed activities as well as possible effects to big game foraging habitat. But in relation to other issues and effects such as mortality risks and habitat loss, these effects are considered minor. Displacement is not considered limiting to these species. The only evaluation criteria carried forward into a detailed discussion were those that could potentially pose a risk to species by the proposed action and alternatives. The time frame for proposed activities is short-term and temporary. Consequently, if species were to be displaced, the recovery period following the disturbance would be relatively short and would allow animals to fully reclaim habitat. NEPA directs the agency to focus a full and fair discussion on significant issues, and identify and eliminate from detailed study the issues which are not significant.

Winter logging activities have been considered in the analysis of effects in chapter III.

LOGGING EFFECTS TO WILDLIFE

Individual Comments

I'm interested in having the dead and dying timber removed; harvesting would help the game.

Response: Some snags (dead trees) would be retained for nongame wildlife. Refer to "wildlife tree retention" section in Chapter II. Timber harvest would open up forest stands and, depending on the

habitat type, may result in an increase in forage for game species. Roads removed with this project (See table in Chapter II) would increase security for game species.

Logging will not help stop the Douglas-fir beetle. It will only make it worse by destroying trees that are habitat for species such as ants and for birds that will feed on the beetles.

Response: See previous responses to comments in the Snags section above. The Douglas-fir beetle population is still increasing and creating more snag habitat for insects and insectivorous birds. Wildlife marking guides would ensure that sufficient large snags and down logs are maintained for insect-eating birds.

Having watched elk "migrate" right through the middle of some of our sales twice a day, and grizzlies "exercise" our hookers on the job, I am not sure just how disturbed these poor animals are. (In logger-grizzly confrontations, it is the loggers who seem more disturbed).

Response: Many loggers and Forest Service employees have noted deer, elk, bear and other wildlife using areas that contain active logging operations, even when people are present. Some animals are temporarily displaced by logging activity, but often repopulate these areas once activity terminates.

EFFECTS OF PROJECT ON BIRDS

Individual Comments

Forest-dwelling birds protect our National Forests in the Pacific Northwest by devouring millions of potentially damaging insects." Please address how this project affects these birds' role in the forest.

The role of birds in controlling bark beetles must be addressed. Also, a brand new USFS report out of Utah shows goshawks thrive in intensive bark beetle killed lodgepole pine forests. The proposed action destroys bird habitat and according to studies will greatly impact species and populations of birds.

Response (to the previous two comments): Insect-eating birds can control beetles and other insects when the insect populations are at an endemic (low) level. Territorial behavior limits how many birds can live in one area, regardless of the amount of food available. When insects reach epidemic (very high) levels, the birds cannot eat enough insects to control the insect population. The populations of birds feeding on the beetles could increase slightly as a result of the abundant food source.

The analysis for goshawks provides inadequate protection for the entire fledging and feeding territories surrounding the nest stands--very important for reproduction success. This seems biologically indefensible, if protection of goshawks is genuinely desired. More protection around a goshawk nest may also be needed depending upon the quality of habitat around the nest site (Warren, 1990). We are also skeptical of the ability of the Forest Service to fund adequate surveys to look for this species before logging takes place. We are concerned that the nest surveys for goshawks and flammulated owls mentioned in the DEIS, along with other necessary wildlife surveys, will not be completed prior to NEPA process completion. If you have data or research results which show otherwise, we would be interested in reviewing it.

Response: Based on your comment, we have added a new mitigation measure in Chapter II. Nest searches would be conducted during implementation. If a nest is found, a 400-acre "post fledgling area" would be provided around the nest. All mitigation measures are an integral part of this project and would be completed.

Implementation of Alternative D would result in a net decrease of 630 acres of suitable goshawk habitat. While known goshawk nest sites will be protected, a plan for protecting nesting sites discovered during harvest activities is not included in the DEIS. We suggest that nest sites discovered during harvest operations be immediately protected by the same measures as for known sites (limited operating seasons, protection of nest trees, etc.)

Response: We agree and have added a mitigation measure so that nest searches would be conducted during implementation and nests would be protected by a buffer (see mitigation measures, Chapter II).

"Approximately 97% of suitable (flammulated owl) habitat has been reduced within the Coeur d'Alene drainage" (III-203) yet the logging alternatives propose more depletion of such habitat, without undertaking a genuine viability analysis. We don't buy the claim that logging is only proposed in stands which will lose habitat value for this owl anyway, given the uncertainty of the beetle's final effects on any given area. The Forest Service simply has no basis for claiming that each of the thousands of acres of logging will be tailored to serve flammulated owls. And such claims come off completely empty since the DEIS also admits the likelihood of cutting down active nest trees!

Response: This figure of 97% is an estimation of a broadscale landscape analysis done for the Columbia Basin Assessment. It is not derived from local data on the Coeur d'Alene District. On the Coeur d'Alene River District, there would be no harvesting of suitable stands. In stands that are older and have the potential to become suitable, an analysis was completed that resulted in dropping stands from regeneration harvest if it was determined that canopy closure would be maintained after beetle activity. In addition, in these units snag design features would be incorporated to maintain the snag components needed for flammulated owls. Commercial thinning of dense, unsuitable stands would benefit flammulated owls by trending the habitat toward historic open conditions. Flammulated owl surveys would be completed before project implementation and any nests found would be protected (refer to mitigation measures, Chapter II).

Comment continued from above: In the Priest Lake analysis, we find that the Forest Service is even proposing logging areas where flammulated owls are known to nest. With the precarious status of so many Sensitive species, this appears to the public as pure carelessness towards rare wildlife.

Response: In the Priest Lake analysis, prescriptions are designed to maintain or enhance flammulated owl habitat if effects of the beetles have not reduced it to an unsuitable level. We are providing 200 foot buffers around known nest trees. Refer to mitigation measures (Chapter II).

Not all the thousands of acres proposed for treatment are capable or suitable habitat for flammulated owls. Please refer to the table listing the numbers of acres of suitable habitat, and to the explanation of capable and suitable habitat in the FEIS.

In the Priest Lake area flammulated owl habitat is considerably more abundant than in the Coeur d'Alene area.

WILDLIFE ANALYSIS

Individual Comments

The decision to not analyze some wildlife species in detail in the EIS is questionable. "Project activity will have no effect to the peregrine falcon under any alternative" says the DEIS, without any analysis being done to support such a statement. Rationalizations for other species are just as doubtful. For example, the boreal owl, which is denied use of habitat for any reason below 5000 feet by the DEIS. And for the harlequin duck. And for the Townsend's big-eared bat, which is known to roost in the loose bark of big trees--not just use caves and man-made structures ("Snags provide den sites for fishers and other mammals, and roosts for several species of bats and owls"--DEIS at III-409, emphasis added).

Response: The criteria for deciding to analyze individual wildlife species in detail are explained in the "Species Relevancy Screen" in Chapter II. If a species does not occur in the affected area, and if no suitable habitat occurs in the affected area, the species is not analyzed in detail. For example, peregrine falcon, the harlequin duck and the boreal owl were not analyzed for the following reasons. Peregrine falcons nest on tall cliffs; there are none in the project area. Harlequin ducks nest on the banks of large streams. No activities would occur within 150 feet of streams, in compliance with INFS guidelines, so no

harlequin duck habitat would be affected. Townsend's big-eared bats don't roost under tree bark; they have roosted in large hollows inside redwood trees in northern California which provided habitat similar to a cave. They don't roost in Douglas-fir trees (Dixie Pierson, Townsend's big-eared bat research biologist, pers. comm. & manuscript in press 4/16/99). The FEIS and project file contain information on all the species that were not analyzed and the reasons why.

The evaluation of boreal owl habitat was not based on areas above 5,000 feet elevation. Boreal owls are associated with high elevation forests. The evaluation was based on those habitat type groups that represent these high elevational forests. Most of these forests are found above 5,000 feet (Hayward and Verner 1994). Consequently, habitat considered would not follow a strict elevational gradient, but would follow varying elevations that represent high elevation habitats.

We wonder why the Method [IPNF Standardized Effects Analysis] is not considered the IPNF's state-of-the-art, since maintaining viable populations has been such a failure. The DEIS even admits shortcomings of cumulative effects analyses in places, such as this from III-417: "The effects of high road densities on American marten have not yet been quantified, particularly when roads are located through marten travel corridors (ridges, saddles, and riparian zones) and foraging areas." The lack of full analyses for Northern bog lemmings means the DEIS assumes connectivity of wetlands is not an issue, ignoring the fragmented character of the landscape. The DEIS at III-423: "For each species analyzed in this chapter, the cumulative effects area has been determined (Table xxxx) and mapped (please refer to the enclosed maps)." The Errata tells us the Table is III-170, but that table does not specify the geographic area the analysis purports to discuss, nor to the maps show wildlife cumulative effects analysis areas. This makes it impossible for the public and the decision maker to understand how the DEIS analyzes cumulative effects and landscape-level habitat conditions.

Response: The Draft IPNF Standardized Effects Analysis was written in 1993. It was never put into final form for at least two reasons: 1) Our vegetation and wildlife databases were not complete in 1993, and the procedure required the user to know how many acres of suitable and potential habitat were available on the forest for each species. That information is not known for some species. 2) We did not have GIS, so it could not be applied at the landscape scale. 3) When Geographic Information Systems (GIS) was available for the IPNF, new information on several wildlife species made the Draft IPNF Standardized Effects Analysis obsolete. It was replaced by habitat models based on current knowledge of the species' habitat needs.

Cumulative effects to marten and fisher are discussed in Chapter III using improved road information.

Bog lemmings' primary habitats are peatlands and sedge meadows. Northern bog lemming habitat has been fragmented by the effects of glaciation. It is currently found in highly disjunct locations in high elevations with very little road building or other human-induced fragmentation. Northern bog lemmings don't occur in Douglas-fir forests. Lemming habitat would be protected by direction in INFS and in the Ecosystem Conservation Strategy for Idaho Panhandle Peatlands, p. 19. It says for peatlands "adequate upland buffer zones are critical to the maintenance of species and community diversity in these sites. The boundary of the upland buffer zones vary depending on slope, aspect and vegetation but generally extend 200 meters from wetland/water margin (Bursik and Moseley 1995). A mitigation measure which applies to all alternatives says there would be no harvest activity within 300 feet of peatlands when there is snow on the ground, or within 600 feet the rest of the year. By designating riparian buffers as mitigation measures, bog lemming habitats won't be in harvest units. The project botanist and hydrologist have determined that the proposed timber harvest activities would not affect the hydrology in the watersheds where peatlands occur, so no changes in the vegetation which bog lemmings use.

The cumulative effects area maps for wildlife are included in the FEIS.

We do not understand the rationale for lynx being the only species' habitat that was analyzed on the Newport District. The decision to not discuss any wildlife within the analysis besides lynx because of special "design features" inherent in this DEIS is an arbitrary and capricious decision. The "special design features" discussed in the DEIS will not actively protect a threatened or endangered species.

Response: Lynx is not the only species being analyzed. All management indicator species and appropriate Threatened, Endangered and Sensitive (and proposed) species have been analyzed and documented in the FEIS.

Please elaborate on the potential effects to old growth dependent and management indictor species. Please discuss effects to elk habitat by alternative.

Response: "Old growth dependent" refers to species which require old growth habitats, and cannot use younger forests. No wildlife species on the Idaho Panhandle National Forest are strictly old growth dependent. The following species use both mature and old growth forests: bald eagle, woodland caribou, lynx, fisher, pine marten, pileated woodpecker, white-headed woodpecker, flammulated owl and goshawk. Flammulated owls are associated with dry to moderately dry habitat types, with Douglas-fir and ponderosa pine forest types; the remaining species are associated with moist habitat types, with forest types such as cedar-hemlock, grand fir or subalpine fir-spruce. The effects of the project on these species have been discussed in the Wildlife section in Chapter III. The pileated woodpecker discussion and the flammulated owl analysis, both in chapter III, explain that mitigation measures have been built into the project to retain snags across the landscape and "no treatments are proposed that would reduce old growth structure or integrity where it occurs."

In the early 1990s the Idaho Panhandle National Forest identified and mapped old growth stands which will be maintained as old growth. These are called allocated old growth stands. No allocated old growth is proposed for treatment in this project on the Coeur d'Alene River Ranger District. On the Priest Lake Ranger District, dry forest old growth treatment is proposed in Alternatives B, C (304 acres), D (338 acres), and G (195 acres). No moist forest old growth is proposed for treatment. Dry forest old growth would be treated specifically to maintain or enhance old growth structure and components (and specified in the marking guides). The DEIS, on page III-299 in the analysis of effects of Alternative B, explained that the proposed treatments would also enhance the characteristics of several additional stands which would likely become future dry forest old growth. A more detailed description of the dynamics of dry old growth forests has been included in the FEIS in Chapter III - Vegetation, Existing Conditions.

Tables in Chapter III show which management indicator species (MIS) have no habitat in the analysis area or the treatments won't have an effect on their habitat. Because they are not affected, they are not analyzed further. Definitions of various levels of effect ("minor", "high", etc.) are given on the bottom of page III-423. Two MIS (goshawk and marten) on the IPNF and three MIS (goshawk, marten & elk) on the Colville NF have habitat in the analysis area or could be affected by the proposed management. Effects to these species are discussed in Chapter III. (Effects to pine marten are discussed in the fisher sections.)

The effects to predicted elk habitat potential by alternative are displayed in the final EIS. Habitat effectiveness is displayed for the preferred alternative only because it has the greatest potential for effects and those effects are minimal.

Wildlife: Chapter III, page 203 states regarding Flammulated Owl Habitat "Approximately 97% of suitable habitat has been reduced within the Coeur d'Alene drainage." The Final EIS should supply figures that will indicate the total number of acres of suitable habitat that have been lost, and the leading causes for the reduction of the habitat. Regarding Bald Eagles, page 215 indicates there are units planned in the Beauty Creek area. It is not clear if there are only a total of 2 units planned for the area. No data was given for the size of the units and whether the new units will be clearcuts. The Final EIS should indicate how many new units are proposed, along with an analysis of how the past and proposed logging will affect bald eagle habitat in the Beauty Creek cumulative effects area.

Response: The figure of 97% is an estimation of a broad scale analysis done for the Columbia River Basin assessment. It is not derived from data on the Coeur d'Alene District. The final EIS states the major reasons for the reduction including acres of habitat (Chapter III, Coeur d'Alene - Wildlife). In the area of Beauty Creek there are a total of two units that would be selectively logged. This method would maintain

live canopy closure as well as snags for the eagles (refer to wildlife snag mitigation measures in Chapter II). One unit is 19 acres, the other is 61 acres. A cumulative effects analysis has been conducted and provided in the final EIS. There are no clearcuts proposed in this project. Please refer to the Silvicultural Terminology on the "Explanations of Terminology" card that accompanies the FEIS.

EFFECTS OF PROJECT ON LYNX

Individual Comments
The proposed logging alternatives would reduce road densities slightly in some areas, but this really doesn't provide much benefit for the Canada lynx. Research shows Lynx prefer habitat which has road densities much lower than these Analysis Areas. Large, landscape-level actions such as the DF Bark Beetle Project are ideal for addressing lynx recovery unfortunately this DEIS misses badly.

Response: Removing unneeded road segments is one of several purposes of this project. As a result of your comment, the Coeur d'Alene District found additional opportunities to close more roads if funding becomes available. It is true that reductions in open road densities would have only a minor benefit to lynx. See our response to comments about roads effects on wildlife above. Also see Appendix D for a list of all roads, their conditions and proposed treatment. There is no research that indicates there are road densities preferred by lynx. We are meeting road standards proposed in the Draft Conservation Strategy (see Biological Assessment for lynx).

With the Proposed listing of lynx under ESA, approved and ongoing actions on federal land were subject to less detailed consultation or conferencing procedures now required. Without the U.S. Fish & Wildlife Service having been adequately consulted for those approved and ongoing actions, it is impossible to assess cumulative impacts of the new logging activities now proposed.

Response: Based on conferencing with The Fish and Wildlife Service (FWS), this project is following recommendations found in the draft Canada Lynx Conservation Assessment and Strategy. The effects analysis and determination of effects in the biological assessment will require concurrence from USFWS prior to the decision.

Similar Comments There were three similar comments stating concerns about the effects of the project on lynx. One commentor said that the effects analysis in the DEIS was "diminished." Another asked if the Forest Service is keeping adequate acreage in denning habitat. The same commentor said the Forest Service should determine existing habitats and designate Lynx Management Units prior to logging.

Response: The assessment area for lynx is consistent with the recommended analysis area in the Draft Strategy. Updated analysis of suitable habitats show that denning habitat would remain at 35% for all alternatives in the Priest Lake Project Area. Refer to the effects analysis section for lynx in the FEIS. The analysis for lynx (including habitats) follows the draft "Canada Lynx Conservation Assessment and Strategy", prepared by the Lynx Biology Team and supported by the Science Team Report in April 1999. Lynx Analysis Units will be developed for the forest in the future. Analysis areas, effects analysis and determination will require concurrence from the U.S. Fish and Wildlife Service.

MISCELLANEOUS WILDLIFE COMMENTS

Individual Comments
The omission of Effects to Specific Wildlife Species as a Key Issue is a major flaw. The effect upon wildlife species is a vital factor in the development and focus of specific activities of the action alternatives. To omit this issue is to overlook major members of the ecosystems involved.

Response: There weren't any wildlife issues identified during scoping that couldn't be resolved through common mitigation measures. Most of the big concerns with wildlife had to be resolved with all alternatives because of the legal status associated with them (Threatened, Endangered, Sensitive, etc.). Wildlife was identified appropriately as an analysis issue, but key issues were those that drove the focus and development of the proposed action (and alternative development) and were responsive to the purpose and need of the project.

What is "underpinning" (III-432)?

Response: The correct word is "underburning".

What are the "predictive habitat models for those species not analyzed for the GA's" (III-418)?

Response: Habitat models evaluate factors such as forest cover type, tree size, slope, habitat type, etc., to determine which habitats on the Idaho Panhandle National Forests are suitable for various sensitive and management indicator species. The factors in each model vary, depending on the habitat needs of the wildlife species. For example, subalpine fir habitat types are considered lynx habitat but ponderosa pine habitats are not. Large tree diameters are needed by flammulated owls and pileated woodpeckers, but not by black-backed woodpeckers. Data for the models come from the forest's timber stand database, digital elevation models, and field observations. Wildlife habitat models are in the project file for this EIS.

The reopening of roads and new roads proposed would adversely affect wildlife and stream quality.

Response: Effects of roads on fisher, lynx, wolverine and pine marten for all alternatives are described in Chapter III. The "Roads and Security" and "Elk" sections further discuss road effects on wildlife in each analysis area. The project is designed to not change the public access potential during implementation and to decrease the access potential following the project. There would be a net decrease of open roads in all three project areas and road closure effectiveness would be improved. Refer to response to comments in the Roads Effects to Wildlife section.

Miscellaneous Comments

Individual Comments

Logging spreads the release of carbon from trees to the atmosphere, contributing to global warmings.

Response: Trees act as carbon storage sites. When trees are cut and made into wood products, that carbon remains locked in the wood. Carbon is not released into the atmosphere until wood is burned.

I propose the NFS personnel get paid only out of bottomline profits from forest operations AND that they be legally liable for environmental damage that is created.

Response: Actions on federal land must be in compliance with laws such as the Clean Water Act, Clean Air Act, and other laws which protect the environment. The majority of funding for Forest Service programs is appropriated by Congress.

LETTERS FROM STATE AND FEDERAL AGENCIES

The following letters from Federal and State agencies have been copied in their entirety as required by FSH 1909.15 (24.1)(2) and (3). The scanning method used did omit certain symbols and special characters such as logos. The letter content remains the same.

STATE OF IDAHO

DIVISION OF ENVIRONMENTAL QUALITY
2110 Ironwood Parkway, Coeur d'Alene, ID 83814-2648, (208) 769-1422
Dirk Kempthorne, Governor

February 16, 1999

Douglas-fir Beetle Project
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, ID 83815

I am the project manager for the Priest Lake Management Plan, and I also have the responsibility of producing the Sub-basin Assessment and TMDL document for the Priest River Basin. This document is due to EPA in December, 2000.

Regarding the draft EIS on the Douglas-fir beetle project, I have read the summary, chapters I and II, and the Priest Lake RD portion of Chapter III. **My comments apply specifically to the Priest Lake RD, and primarily to the watershed, hydrology and fisheries sections in chapter III (pages 307-379).** My comments assume that one of the harvesting alternatives will go forward. My preference is alternative C from the standpoint of maintaining current sediment yield because of no new road construction. My comments also are restricted to watersheds on the current 303(d) list: Lamb Creek, Binarch Creek, Lower West Branch, Lower Priest River, and because of the Lower Priest River listing, its tributaries Upper West Branch and Quartz Creek.

First, a general comment regarding conditions for "water quality impaired streams" on the 303(d) list for which the State DEQ has the responsibility to develop sediment allocation and reduction plans (TMDLs).

Throughout the Watershed Section, the narrative and tables of Watershed Characteristics acknowledge stream impairment, for example: "hydrologically destabilized, pool filling, channel widening" (Lamb Creek, page 316); "elevated sand deposition" (Binarch Creek, page 317); "the presence of mid-channel bars throughout the basin are indications of accelerated sedimentation above what would have been expected" (Upper West Branch, page 318); "the instability of both Steep and Quartz Creeks is evidenced by the amount of bedload/sediment which has reached the mainstem of Quartz Creek" (page 319); "the Lower West Branch is a channel out of hydrologic equilibrium as evidenced by extremely poor channel conditions and numerous point sources of ongoing sediment delivery to streams" (page 320); and "the majority of recent failure sites have been located on roads which are not maintained or on irregularly maintained roads" (page 311). Tables III-124 thru III-128 show road densities greater than the 2.0 miles/mile2 criteria, high percentages of Functioning at Risk and Not Properly Functioning conditions,

moderate to high sediment yields, and significant riparian road densities. The Fisheries section also acknowledges significant impact on fish habitat from encroaching and riparian roads and crossings.

The Clean Water Act and Water Quality Limited 303(d) Listings are mentioned (page 354), and it is stated that the "Forest Service will demonstrate or find that their actions will not result in a net significant increase in the pollutant of concern or prohibit or delay potential recover." First, I believe that the current 303(d) lawsuit, resulting court order, and State TMDL responsibilities are underplayed in the report. While the proposed road reconstructions, obliterations, and elimination of stream crossings are welcomed, I simply do no see from the data and maps a substantive enough effort to improve watershed conditions to significantly trend the 303(d) listed streams toward water quality compliance. Standard language is used throughout the Cumulative Effects paragraphs, "the combination of effects of any action alternative and past, present, and reasonably foreseeable activities would not increase, and likely decrease sediment to..." Why not propose sufficient reconstructive activities so that an affirmative statement about sediment reduction and habitat improvement can be made. This intent is implied on page 354 under Forest Plan, second paragraph. It would seem that the Douglas-Fir beetle project would provide a timely opportunity over the next few years to better rectify the acknowledged problems of existing sediment delivery and stream instability problems in these watersheds.

Following are a few specific comments or questions that I had about the draft EIS:

Page 310. In the narrative, Encroaching and Riparian Road Densities were stated as length relative to the length of all perennial streams in the watershed by percent. In the Watershed Characteristic tables however, the units stated were miles/miles of streams. For example, in Table III-124, Lamb and Binarch watersheds, Riparian Road Density was 0.8 miles/miles of streams which can't be right unless this meant 0.8% of perennial stream miles.

Page 311. "Approximately 1,900 miles of road and 1,500 road channel crossings exist in the Priest River Watershed." Is this the entire basin or just Federal land?

Page 321. Sensitive snowpack for Lower West Branch = 31%. I think this is much higher. Lower West Branch is extremely "flashy and volatile" to rain-on-snow events, and during these periods LWB becomes very turbid nearing the turbidity limit in the Idaho Water Quality Standards.

Page 325. Lamb/Binarch - "some road segments would be removed that are encroaching on the flood plain." I do not see such obliteration on the maps.

Page 326. "Road maintenance and stream crossings improvements should trend all streams towards an increase in stability an reduction in fine sediment composition of stream channel substrate". In my view an overestimation of the benefits based on the maps.

Page 337. In Table III-132, as well as the other Effects to Watershed Conditions tables, approximate sediment yield from Alternative D is increased based on "permanent and temporary roads, and regeneration and heavy thinning harvest units proposed in each watershed" (page 322). I am assuming your calculations takes this back to current conditions over a certain time period, because if not, then there is a net increase of sediment yield in 303(d) watersheds. Are calculations possible to estimate sediment yield decreases following reconstruction, obliteration, and elimination of stream crossings? I think that is what Table III-142 was trying to show (page 367), but that table was unclear.

Page 359. Table III-138. No description for code H.

Page 363. Either Table III-139 or III-140 is mislabeled and should read "Watersheds not burned by large fires."

Page 368. Table III-144. As best as I can tell from the maps, I do not see 2.1 miles of Encroaching Road reduction in the Lower West Branch.

Thank you for the opportunity to respond to the draft EIS.

Sincerely,

Glen Rothrock
Priest Lake Project Manager

STATE OF IDAHO

DIVISION OF ENVIRONMENTAL QUALITY
2110 Ironwood Parkway, Coeur d'Alene, ID 83814-2648, (208) 769-1422
Dirk Kempthorne, Governor

March 16, 1999

Douglas-fir Beetle Project
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, ID 83815

RE: Comments on Draft EIS

I have reviewed the draft EIS document for the Douglas-fir Beetle Project and offer the following comments with regard to air quality issues. These comments include sections from the Coeur d'Alene River Ranger District and the Priest Lake Ranger District but are general enough that the comments are applicable to the whole project.

Page 11-28, Implementation Monitoring - Air Quality.
Smoke management guidelines established by the Idaho Smoke Management MOA (1990) apply to all forms of prescribed fire activities, not just to burning timber harvest residues as it is inferred in this section. For example, all of the action alternatives include underburning as one of the fuel treatment methods, ranging from 400 to I 0,000 acres depending on the alternative. This type of burning should be coordinated with the North Idaho Airshed Group smoke management program.

Page 11-40, Table 11-20 Summary of Fuel Treatment Acres, CDA River Ranger District.
The numbers in this table do not appear to reconcile with the number of treatment acres in Table II- 14 on page 11-33. Also, the various treatment types identified in the fuels reduction tables are not defined or described in any detail anywhere in the document which makes it difficult to evaluate which treatments involve burning and which treatments exclude burning. As a result of these discrepancies, it is difficult for the reader to determine the total number of acres scheduled for some type burning activity.

Page 11-48, Table 11-26 Summary of Fuels Treatment Acres, Priest Lake Ranger District.
Same comments as above, the numbers in the table do not reconcile with Table 11-14, and need better definition of treatment terminology.

Page 11-186 Air Quality Regulatory Framework.
This section needs to identify the nearest Class I areas that might be impacted by the dispersion of smoke from the project, similar to the discussion in the comparable section for the Priest Lake Ranger District on page 111-404. The Priest Lake Ranger District section includes some general information on the Clean Air Act and National Ambient Air Quality Standards which should be included here as well. See comment below on the Priest Lake section.

In addition, the U.S. EPA released its "Interim Air Quality Policy on Wildland and Prescribed Fires" in April 1998. The objective of the policy is to provide for fire to function naturally in the wildlands while protecting public health and welfare. The policy provides great incentives for states and federal land managers to work together to develop state smoke management programs.

Page 111-187 Methodology.

This sentence should include, ". . . annual reports from the Montana/Idaho Smoke Management Committee *which includes air quality monitoring data compiled by the Idaho DEQ.*" It also may be beneficial to show where the Idaho DEQ monitoring sites are located in north Idaho on one or more of the project maps. A table with the locations and GPS coordinates of the sites is available from the Coeur d'Alene Regional Office of DEQ.

Page 111-187 Effect Common to All Alternatives.
According to the fuels treatment summary, Table 11-20, burning of landing piles for treatments B, C, and E show more acres than the underburn acres, so it may be inaccurate to characterize this type of burning as "minor." Also, because many of the treatment acres, especially those around Hayden Lake, are relatively close to urban areas, the potential for smoke impact is greater such that it also might be inaccurate to claim that "smoke from this burning will minimally affect air quality." For example, air quality monitoring data collected by the USFS at the Big Creek Burn in 1998 in Montana shows measured smoke impacts that significantly exceed the health-based standards for particulate matter at nearby locations. These impacts occurred despite an extensive amount of coordination on a well-planned burn that included smoke management activities.

The last part of this same paragraph touches on another issue which significantly impacts air quality, fugitive road dust generated by logging truck traffic. Current USFS policy only addresses dust abatement and road maintenance on the roads within the forest boundaries. However, when the logging trucks leave the forest boundaries and begin traveling on the county roads, significant air quality impacts can occur from fugitive dust emissions from untreated, unpaved roads. These impacts have a greater impact on human health because of the increased rural population in the project area and the potential for a high volume of truck traffic associated with all phases of this project. Historically, this type of impact generates the most frequent and wide spread type of air quality complaint at DEQ. DEQ has monitoring data to substantiate the air quality impacts from fugitive road dust sources and the emission reductions that are possible through the application of dust abatements.

In order to mitigate this impact outside of the forest boundaries, this project should include the development of a coordinated road maintenance agreement with the county or local highway districts and all of the logging contractors associated with the project. Our office can assist with this effort by providing contact names and other information. Controlling fugitive dust on unpaved roads provides additional benefits such as reducing water quality impacts to nearby streams and it also reduces overall road maintenance costs.

Page 111-189 Cumulative Effects.
The statement is made in this paragraph that most of the burning would occur in the early spring "when demand for airspace has been historically low." This statement conflicts with all the earlier discussion about the benefits of following the North Idaho/Montana Airshed Group smoke management program. This program is presently only active in the fall from September to November. If the USFS plans to conduct most of their burning in the spring, there would be no coordinated smoke management program in operation. The North Idaho/Montana Airshed Group is currently planning to extend the program to include the spring season but there are still a number of issues to resolve before this is finalized. Also, with the overall forest-wide increase in prescribed fire for ecosystem management, other forests will be increasing burning during the spring as well, such that smoke from upwind sources may create greater demand for airspace throughout the burning seasons.

Page 111-189 Consistency with the Forest Plan.
In the second paragraph of this section, the term "regulated" implies that there are specific regulations or rules with regard to smoke management in Idaho. At the present time, there are no specific rules or regulations for smoke management other than general rules regarding emergency episodes and open burning. Instead, the current program, as described earlier in the document, utilizes a voluntary approach

which was established through the 1990 Memorandum of Agreement to form the North Idaho Airshed Group.

Page 111-405 Regulatory Framework.
The last paragraph in this section summarizes some of the important federal regulations such as the Clean Air Act Amendments and the National Ambient Air Quality Standards (NAAQS). This section did not mention the new NAAQS for PM2.5 that was recently adopted in July 1997 by the U.S. EPA. This recent action further refined the ambient standards for particulate matter (PM). This new PM2.5, NAAQS will present greater challenges for air quality and smoke management because research has shown that combustion sources contribute significantly to this size classification of particulates. Additional information on the new PM 2 NAAQS is available on numerous EPA web sites.

The last two sentences in this same paragraph identify the nonattainment areas in the region. Fernan in not a nonattainment area for PM 10. Kootenai County was a proposed PM 10 nonattainment area which means it was listed for EPA consideration but has since been removed from that list due to several actions at the state and local level. Pinehurst and Sandpoint are the only two nonattainment areas in north Idaho.

And finally, the last sentence in this paragraph is such a generalization that it adds no value. Infrequent smoke impacts due occur periodically in all of these areas from prescribed forest burning activities at the local and regional level.

Page 111-406 Effects Common to All Action Alternatives.
The third and fourth paragraphs identify that two different smoke management programs have jurisdiction within the Priest Lake Ranger District. Increased coordination and communication between the two smoke management programs may further reduce air quality impacts from prescribed burning within the district.

Page 111-407 Table 111-167 Summary of fuel treatment acres, Priest Lake Ranger District.
This table is not consistent with Table 11-26 for organization of fuel treatments.

Thank you for the opportunity to provide input into the final development of this EIS and if the review team has any questions about the comments provided above, please give me a call at (208)769-1422 or contact me via E-mail at dredline@deq.state.id.us.

Sincerely,

Dan Redline
Air Quality Analyst

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Diane Riley, DEQ - Boise
Ann Acheson, USFS Region 1, Missoula

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn of: ECO-088

March 17, 1999

David J. Wright, Forest Supervisor
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, Idaho 83814

RE: Douglas-fir Beetle Project Draft Environmental Impact Statement

Dear Mr. Wright:

We have reviewed the above-referenced draft environmental impact statement (EIS) in accordance with our responsibilities under the National Environmental Policy Act. The purpose of the action appears to be to maximize economic return from timber damaged by a bark beetle infestation and to maximize opportunities for restoration of areas damaged by the infestation.

Based on our review, we have rated the draft EIS EC-2 (Environmental Concerns Insufficient Information). We have also enclosed comments that request more information to ensure that the proposed alternatives are thoroughly compared and contrasted with each other.

Our principal concern is that this project may just be the first of many harvesting efforts to utilize timber damaged by bark beetles over an area of nearly 270,000 acres. Harvesting over such an enormous area could be far more intrusion than is sustainable by the ecosystem: especially in light of the timber sales and other projects already planned for the area. We think it would be a mistake to conduct projects like this one piece meal. It is important to develop a comprehensive plan for dealing with beetle damaged timber. A plan that substitutes beetle damaged timber for other planned sales, minimizes construction of roads, maximizes obliteration of roads and other restoration activities, and minimizes overall intrusion into the ecosystem. Optimally, such a plan would be developed even before this project gets underway, but certainly before any future projects to harvest the beetle damaged timber. For the current project, we think the EIS should at least identify timber sales that will not need to go forward in light of the timber from this project.

In addition, as you are aware, the U.S. Environmental Protection Agency (EPA) is conducting a Remedial Investigation/Feasibility Study in the Coeur d'Alene River Basin. It is important that the U.S. Forest Service, to the extent practical, work closely with EPA to ensure that our activities within the Basin are coordinated to the best of our abilities.

Earl Liverman is our principal contact for this project. He can be reached at (208) 6644858. Also, please don't hesitate to call me at (206)553-8574 if you would like to discuss this matter.

Sincerely,

Richard B. Parkin, Manager
Geographic Implementation Unit
Enclosure

U. S. Environmental Protection Agency
Comments Regarding the Douglas-fir Beetle Project
Draft Environmental Impact Statement

The following comments are grouped under specific chapter subheadings.
Purpose and Need

The purpose of and need for the proposed action should include components of the follow-on discussion. (p. 1-2) For example, the purpose should include economic and social values and the need for the proposed action should include road management.

This section should also clearly indicate that the proposed action is not intended to control or stop the current Douglas-fir Beetle outbreak (p. I- 1), but rather is intended to maximize economic return and maximize restoration opportunities. (p. 1-3)

Scope of the Proposal

If high and moderate hazard Douglas-fir stands are considered, approximately 250,000 acres of the Idaho Panhandle National Forests and approximately 17,000 acres of the Colville National Forest have the potential to be infested by the current Douglas-fir beetle outbreak. (P- 1-1)

The proposed timber harvest for both National Forests is considerably less than the acreage of Douglas-fir stands at risk; thus, please clarify whether the proposed action is the first and only action or is likely one of a series of actions. If one of a series of potential actions, identify the concerns and/or issues that would prompt subsequent proposals.

Process Orientation

Notwithstanding the magnitude of the current outbreak, it is not well established that the infestation is an unexpected event, or a serious occurrence, or a situation requiring urgent action given historic beetle outbreaks.

Therefore, please clarify the need for requesting an "Exemption from Stay of Implementation" under 36 CAR 215. and include such rational and procedural requirements as part of the description of the Record of Decision process.

Alternative Descriptions - Alternative A (No Action)

The No Action alternative does not provide for a clear understanding of what would occur if there were to be no change from current management direction or the current level of management intensity. For example, suggesting that management of the forest resource would not be initiated at this time (p. 11-8) is unclear given that there are reasonably foreseeable and/or existing actions that could affect the Douglas-fir beetle infestation (Volume 11, Appendix E), and these previously planned and ongoing activities are often referenced in subsequent discussions.

Consequently, Alternative A (No Action) should be revised to fully integrate the actual or anticipated consequences of reasonably foreseeable and/or existing actions, as well as other reasonable courses which could occur within the scope of such actions.

Features Common to All Action Alternatives

Given the prevalence of threatened or impaired waterbodies as defined under Section 303(d) of the Clean Water Act found within the proposed project area, we recommend that the presentation

include a subsection devoted exclusively to the identification of such waterbodies, pollutant(s) of concern and the specific actions proposed to prevent a net increase, and preferably cause a net decrease, in the pollutant(s). This effort would complement other information found elsewhere in the document.

In addition, we also recommend that, to the extent possible, the description address how the various alternatives would interface with the State of Idaho Division of Environmental Quality total maximum daily load process.

Monitoring

Identify the criteria to be used to select projects for BMP implementation monitoring (p. II-26) and describe other supplemental monitoring activities which may occur incidental to administration and/or oversight of a timber sale contract.

Road Management

Road construction and reconstruction activities may adversely affect aquatic and terrestrial ecosystem integrity and may interfere with watershed and wildlife management activities. For example, roads result in stream sedimentation and soil erosion, and they provide for human access which can result in groundwater and surface water contamination, and diminution of fish and wildlife habitat.

Accordingly, please disclose the criteria (e.g., why, where, etc.) for determining the total mileage needed for temporary and permanent roads required to support the proposed level of timber harvest and revegetation restoration.

Vegetation

Indicate the percentages of National Forest Lands and other public and private lands found within each watershed. And, describe other public and private activities planned for or underway to respond to the beetle outbreak and how the proposed ecosystem restoration activities would interact with those activities.

Effects Common to the Action Alternatives

Expand the discussion regarding potential short-term, implementation-related sediment impacts to include the mitigating affects of BMPs and how BMPs will be monitored during and after implementation for effectiveness. (p. 111-83)

In addition, please clarify the following statement which frequently appears at the end of the alternative effects analysis: "This alternative is not expected to contribute to the pollutant of concern. " For example, indicate whether the statement is the result of a quantitative or qualitative watershed analyses, and provide the underlying analyses to support the statement.

Economics

The brief discussion of fungal spores and other beetles does not substantiate the claim that the proposed action must proceed as quickly as possible to maximize economic return. (p. 111-239)

Provide additional information regarding Douglas-Fir beetle biology, and in particular, the relationship between the beetles and prevalence of other forest diseases and insects as they may affect the economic value of currently infested trees.

Noxious Weeds

The discussion of cumulative effects of noxious weeds seemingly contains contradictory statements which should be reconciled.

For example, the cumulative effects of Alternatives D and F is characterized as low to moderate and all other action alternatives are characterized as low. (p. 111-267) The action alternatives are also characterized as not contributing to weed spread despite the display of acres of habitat susceptible to invasion by one or more weed species. (Volume 11, Table 111-245)

In addition, clarify how features of the action alternatives would reduce the potential for noxious weed infestation and spread, and how the noxious weed features listed at page II- 17 would complement and/or substitute for KV funding.

SUMMARY OF THE EPA RATING SYSTEM
FOR DRAFT ENVIRONMENTAL IMPACT STATEMENTS:
DEFINITIONS AND FOLLOW-UP ACTION *

Environmental Impact of the Action

LO--Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities with no more than minor changes to the proposal.

EC--Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EO--Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information

The draft EIS does not contain sufficient information for EPA fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3--Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment

IDAHO DEPARTMENT OF LANDS

954 W. Jefferson St., PO Box 83720
Boise, Idaho 83720-0050
Phone (208) 334-0200 Fax (208) 334-2339
STANLEY F. HAMILTON DIRECTOR

Mike Dombeck, Chief
USDA Forest Service
PO Box 96090
Washington, DC 20090-6090

Dear Chief Dombeck;

The Idaho Department of Lands has been working closely with Idaho Panhandle National Forests Supervisor Dave Wright and his staff in addressing the Douglas-fir bark beetle problem in northern Idaho. Both of our agencies became aware of this problem while conducting annual aerial surveys to monitor forest health conditions.

This current outbreak of Douglas-fir bark beetle, estimated as the largest since the 1950s, resulted from an ice storm and severe winter snows during the winter of 1996-97, By and large, state and private forest landowners were able To stem the beetle outbreak on their lands through prompt salvage of distressed Douglas-fir. However, Forest Service efforts to salvage storm damaged timber were somewhat thwarted by appeals and litigation.

The Idaho Panhandle National Forests currently proposes restoration or salvage treatments on approximately 25,000 acres as a strategy to reduce the Douglas-fir bark beetle outbreak and to reduce fuel loading that may likely lead to catastrophic wildfire. The Idaho Department of Lands supports the Forest Service favored alternative as described in the Draft Environmental Impact Statement. Moreover, we encourage implementation of this alternative as quickly as is legally possible. Time is of essence to stem this outbreak.

In closing, I wish to express my sincerest appreciation to Dave Wright and his staff on the Idaho Panhandle National Forests. The cooperation and coordination between our agencies in dealing with this important problem on federal, state and private land continues to be impressive.

Sincerely,

Stanley F. Hamilton
Director

IDAHO DEPARTMENT
OF
PARKS AND RECREATION

February 22, 1999

David Wright, Forest Supervisor
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, ID 83815

RE: Douglas-fir Beetle Project Draft EIS

Dear Supervisor Wright:

The Idaho Department of Parks and Recreation Trails Program reviewed the draft environmental impact statement for the Douglas-fir Beetle Project. Our program is very concern about the impacts this project will have on summer and winter trail-based recreation opportunities.

Coeur d'Alene River Ranger District Comments

The harvest in the Coeur d'Alene Area will greatly impact the Canfield Mountain Trail System. Alternative B would close the eastern part of the trail system and Alternative D would completely close the trail system for a temporary period. The Canfield Mountain Trail System is one of the most heavily-used trail systems on Idaho Panhandle National Forest. The trail system also offers Coeur d'Alene residents the nearest trail system in a roaded-modified setting.

The draft EIS fails to mention any mitigation measures that will be taken to insure the integrity of the trail system. Our department has heavily invested into the Canfield Mountain Trail System with our Off Road Motor Vehicle Fund grants by providing $27,000 to the Fernan Ranger District to reconstruct and establish a trail system on Canfield Mountain. In order to protect our investment, we recommend that the following mitigation measures be implemented.

1. No harvest activities should occur directly in the trail corridor. If harvest activities are needed, the trail tread should be reestablished immediately after the harvest and sufficient blazing should be provided through the harvest area. Slash and other debris should be removed from the trail by the logging contractor. The Idaho Panhandle National Forest should monitor the logging activity during the operation to insure the trail system is impacted minimally.

2. The temporary closure of the system should occur during the time of year when trail use is lowest. The closure should also be for as short as time as possible.

Timber harvest in the Hayden Area would plow some roads for winter harvest. The EA states that existing trailheads for snowmobile would remain available and that snowplowing would be prohibited where it would completely eliminate trail access from identified trailheads. The Fernan Saddle Snowmobile trailhead is one of the most popular trailheads within the Kootenai County snowmobile trail system. Elimination of snowmobile trails by snowplowing will concentrate snowmobile use on the remaining trails. For this reason, we believe that a date limit should be imposed on winter logging. We suggest that stopping winter logging by December 15 would allow

the snowpack to accumulate on those trails to amount that they could be groomed by the middle of January. We also encourage you to work with the Kootenai County Snowmobile Advisory Committee to notify them which roads will be plowed so they can plan their grooming schedules.

Page 111-251 of the draft EIS states that an ATV trail system using logging roads might be developed in the Hayden area if the need is identified and funding found. ATV use in North Idaho is rapidly growing. Our ATV registration numbers show that ATV registrations have grown 149% over the past four years in North Idaho. Our department offers several funding sources for the development of ATV trails such as the Recreational Trails Fund, the Off Road Motor Vehicle Fund, and the Motorbike Recreation Fund. Our department would also be willing to offer assistance in the construction of ATV trails with our Trail Cat program. We will provide the equipment and the operator. All that is required for Forest Service is providing some place for our operator to stay and providing someone to work with our operator for safety reasons. We encourage the Forest Service to develop an ATV trail system in the Hayden area if funding is available.

Priest Lake Ranger District

The EIS states that there would be no direct effects to trails in the Lakeface-Granite area. The EIS also states that use of these trails might be temporary interrupted by harvest activities such as the use of helicopters and trucks on haul routes. We suggest to minimize the interruption of trail activities that harvest activities be limited to the weekdays. That would still make the trails available for weekend recreation trail use.

Timber harvest in on the Priest Lake Ranger District would plow some roads for winter harvest in both the Lakeface-Granite area and the Binarch-Lamb area. The Bismark Mountain area is one of the most popular snowmobile trails on the district. Elimination of snowmobile trails by snowplowing will concentrate snowmobile use on the remaining trails. For this reason, we believe that a date limit should be imposed on winter logging. We suggest that stopping winter logging by December 15" would allow the snowpack to accumulate on those trails to amount that they could be groomed by the middle of January. We also encourage you to work with the Priest Lake Snowmobile Advisory Committee to notify them which roads will be plowed so they can plan their grooming schedules.

In conclusion, the harvest activities with this project will temporarily effect trail-based recreation. We have suggested several solutions to minimize those effects. We hope that the Idaho Panhandle National Forest incorporates some of these solutions into the final EIS. If you have any questions about these comments, please give me a call (209)334-4180 ext. 230.

Sincerely,

Jeff Cook
Trails Program Coordinator

IDAHO FISH & GAME
PANHANDLE REGION
2750 Kathleen Avenue
Coeur d'Alene, Idaho 83814

Mr. Kent Dunstan
US Forest Service
32203 Highway 57
Priest River, ID 83856

March 16, 1999

Dear Kent:

RE: DOUGLAS-FIR BEETLE PROJECT DEIS

We have reviewed the Priest Lake District's portion of the Douglas-fir Beetle Draft EIS. Under the preferred alternative (D), 3,800 acres would be logged with regeneration harvest prescriptions, and 3,601 acres would be logged selectively. No new permanent road construction is proposed, but 15.6 miles of temporary road are proposed for construction and 83.7 miles of road are proposed for reconstruction. Alternative D calls for removal of 40.8 miles of roads, removes 65 stream crossings, and restores fish passage to 3.8 miles of stream currently blocked by man-made barriers.

We do not oppose the idea of salvage logging in beetle infested areas. It is our understanding from conversations with Forest Service personnel that the salvage logging is unlikely to stop the current outbreak of Douglas Fir beetles. The purpose of the salvage logging is to capture the value of the dead and dying trees and in the process obtain funds from the sale receipts to do forest restoration work. We see the value of this concept and support it.

While we generally support this concept we anticipate some negative impacts to fish and wildlife from the proposed action on the Priest Lake district. Our main concern is that the high level of road reconstruction, coupled with temporary road construction, creates a high likelihood of fine sediment delivery to streams already impacted by previous land management activities. Fish habitat on the Priest Lake District has been impacted by fine sediment delivery resulting from past logging and road building, and from failures of existing roads and stream crossings. Despite other threats to native fish species in the lake and Priest River, we believe loss of habitat complexity and sedimentation of streams are the major factors which have contributed to the decline of westslope cutthroat trout and bull trout in tributaries to the west side of the lake and river.

Adherence to INFS guidelines helps to reduce potential sediment impacts. Additional benefits of the action alternative include reduced road density, fewer stream crossings and reduction in road mileage that encroaches on stream corridors.

Grizzly bear security habitat will be slightly reduced through proposed harvest activities in the Kalispell-Granite and Lakeshore Grizzly Bear Management Units. The grizzly bear population in the Idaho portion of the Selkirks is small and we have concerns that even slight reductions in security might impact population recovery. Human caused mortality appears to be the single greatest cause of mortalities among Selkirk grizzly bears. We recommend taking measures to further reduce project impacts on grizzly bear security. For example, the document suggests that line of sight will be increased by regeneration harvest, potentially reducing grizzly bear security. Retaining sight buffers within regeneration units could reduce this impact. Other concerns we have with security include the condition

of reconstructed roads following project activities. The DEIS is not clear as to how many roads or miles of roads proposed for reconstruction are currently brushed in or otherwise physically not drivable with motorized vehicles. We recommend those roads that are currently not drivable be catalogued, and that actual accessible road mileage following sale activities be similar to or less than what is currently present in the sale areas.

Impacts to lynx and fisher habitat were adequately covered in the DEIS and do not appear to be significant. Inland Native Fish strategies would in most cases maintain connectivity between habitats through riparian corridors and valley bottoms for fisher and marten.

Implementation of Alternative D would result in a net decrease of 630 acres of suitable goshawk habitat. While known goshawk nest sites will be protected, a plan for protecting nesting sites discovered during harvest activities is not included in the DEIS. We suggest that nest sites discovered during harvest operations be immediately protected by the same measures as for known sites (limited operating seasons, protection of nest trees, etc.).

Risk of weed spread and infestation is adequately covered in the DEIS and the Priest Lake District has had success in weed control through preventative seeding and road closures. We support these weed control measures.

The preferred alternative will do a good job of reducing road mileage in the Lakeface watersheds, but restores stream crossings and maintains a riparian road in Fedar Creek (tributary to Granite Creek). Sediment input from roads in the Fedar Creek and other Granite Creek tributary watersheds have impacted Granite Creek and reduced its productivity of westslope cutthroat and bull trout. We recommend more emphasis be put on eliminating or treating problem roads in the Granite Creek watershed. We concur with the proposed riparian road obliterations in the Upper and Lower West Branch watersheds, and expect that the treatments will benefit westslope cutthroat trout over the long term. We also believe removal of crossings which currently receive little or no maintenance will provide long term benefits despite some potential short term impacts.

We remain concerned that sediment delivery from the extensive amount of reconstruction proposed will continue to impair stream habitat unless extraordinary measures are taken to control sediment production from these sites. Many of the roads proposed for reconstruction include numerous stream crossings, and/or closely follow stream corridors. We are concerned that if these roads are retained on the landscape following sale activities without adequate road maintenance budgets they will become long term sediment sources. We suggest permanent closures, including pulling of culverts, on as many roads as possible. We also recommend BMP's including slash filter windrows, frequent cross drainage, mulch, straw bales, and/or silt fencing to control sediment from disturbance associated with road reconstruction.

We believe salvage of dead and dying trees, where it can be accomplished without creating significant long or short term risks to fish and wildlife, is appropriate under the circumstances. After our initial meetings with the Forest Service on the beetle infestation, it was our understanding that salvage would be low risk, use either existing roads and possibly only a very limited number of miles of temporary spur roads, and that opportunities to conduct restoration activities would be funded to the level possible by timber sale receipts and as a result of improvements to existing roads (i.e. replacing undersized culverts and restoring fish passage where existing culverts create barriers). We also encouraged examining opportunities to use controlled burns to alleviate fuel build-ups in areas where it would also benefit big game. Under this scenario, we believe the salvage creates a "win-win" situation. We believe the preferred alternative, however, poses unacceptable levels of risk in several watersheds, and we are particularly concerned about the apparent net increase in drivable road mileage when an overabundance of roads has, in our view, constituted the single greatest impact to fish and wildlife on the District.

We encourage the District to modify alternatives and to develop an alternative which maximizes watershed recovery opportunities, minimizes additional road construction and long term increases in motorized access, and minimizes risks to fish and wildlife. In particular, we recommend post-project removal of riparian roads and roads with high numbers of stream crossings which are proposed for reconstruction, and incorporation of a plan to ensure that previously un-drivable roads remain closed to motorized access. We would welcome the opportunity to discuss new or modified alternatives with you or your staff.

Thanks for the opportunity to comment.

Sincerely,

Greg Tourtlotte
Regional Supervisor

GIT:CEC:PJC:njk

C: Tracey Trent, IDFG, Boise USFWS, Spokane

IDAHO FISH & GAME
PANHANDLE REGION
2750 Kathleen Avenue
Coeur d'Alene, Idaho 83814

Ms. Susan Jeheber-Matthews
US Forest Service
2502 E. Sherman Avenue
Coeur d'Alene, ID 83814

Dear Susan:

REFERENCE: COEUR D'ALENE RIVER DISTRICT PORTION OF THE DOUGLAS FIR BEETLE DEIS

General Comments:

We have reviewed the Coeur d'Alene River District's portion of the Douglas-fir Beetle DEIS. We do not oppose the idea of salvage logging in beetle infested areas. It is our understanding from conversations with Forest Service personnel that the salvage logging is unlikely to stop the current outbreak of Douglas Fir beetles. The purpose of the salvage logging is to capture the value of the dead and dying trees and in the process obtain funds from the sale receipts to do forest restoration work. We see the value of this concept and support it.

While we generally support this concept we do anticipate some negative impacts to fish and wildlife from the proposed action on the Coeur d'Alene district. Our main concerns are the construction of new permanent and temporary roads, the reconstruction of roads and large clearcuts in heavily impacted watersheds.

Road construction and reconstruction has two main negative effects on fish and wildlife: increased access, particularly motorized access, for hunters and resultant increased vulnerability of elk to harvest; and increased sediment production and higher risk of road failures with resultant sediment delivery to streams. These impacts can be reduced by implementing the following recommendations:

1. Minimize the construction of new roads. Permanently close and pull the culverts on all new roads, except where the new road replaces a riparian or other poorly located road, and is not absolutely needed for future management activities. Replace existing floodplain or riparian corridor roads with ridge roads. Pull the culverts and re-contour roads no longer needed in the floodplain or riparian corridor.

2. Construct temporary roads as close to anticipated time of use as possible and obliterate them as soon as possible after they are no longer needed for sale activities. The Final EIS should specify a timetable for the removal of temporary roads - we recommend no longer than five years after initial opening, and preferably closed within one to two years of being opened.

3. Close all reconstructed roads that were impassable to motor vehicles or closed to motorized vehicles prior to reconstruction.

4. Use helicopters wherever feasible to minimize the need for roads.
5. Minimize the number of stream crossings in the design of roads, particularly those high in the watershed.

Large clearcuts, particularly those on south facing slopes, can change the timing, rapidity and magnitude of snow melt and runoff. This can result in high flows, slope and culvert failures, and significant sediment

delivery to streams. These impacts can be reduced by avoiding large clearcuts particularly on south facing slopes and in those drainages already heavily impacted by roading and clearcuts.

Specific Comments on the DEIS:

Department management plans for fisheries in the Coeur d'Alene River and Hayden Lake basins call for an emphasis on improving wild cutthroat trout production to maintain quality fisheries, and to work on habitat issues with land managers to meet those goals. According to the document on page III-155, the preferred alternative poses the greatest risk to fish populations, and (along with F) is the alternative most likely to further depress fish populations in many stream segments. Beneficial measures for fisheries include planned removal of 6.5 miles of riparian roads and an increase in accessible habitat to migratory salmonids by 3.9 miles.

Most impacts to indicator species of wildlife, with the exception of Coeur d'Alene salamanders and flammulated owls, are expected to be negative, although mostly minor or moderate. This includes elk, which are currently depressed as a result of harsh winter conditions two years ago.

Currently, the Department's elk management plan herd size objectives for the Panhandle zone are not being met as a result of impacts of the 1996-1997 winter conditions. Herd recovery to pre-1996 levels could be slowed in some areas by increased access. Department and other research has clearly shown increased vulnerability of elk where there is widespread accessibility of elk habitat to motorized vehicles (Department research was conducted in Unit 4). We are concerned that the improved access which will result from new and, perhaps more importantly reconstructed, roads will contribute to slower herd recovery rates, negatively affecting our ability to meet Department goals.

Some specific concerns we have with the preferred alternative (and with some of the other alternatives) are as follows:

- Stream-side roads are proposed for reconstruction along portions of 4th of July Creek, Little Bumblebee Creek, and Cottonwood Creek. All of these streams support westslope cutthroat trout, and unless reconstruction includes moving the road prism away from the creeks and floodplains, we believe the roads will continue to negatively affect channel integrity and downstream or adjacent fish habitat.

- Proposed new temporary roads in the Wolf Lodge Creek drainage and the Hayden Creek drainage include multiple headwater stream crossings. Although somewhat dependent on the length of time these temporary roads are in place, they pose an increased risk to already impaired watersheds.

- Large clearcuts proposed in the 4th of July Creek and Mokins Creek drainages are on southerly or westerly aspects, increasing the risk of rapid flow delivery to streams during rain-on-snow events. Both streams support westslope cutthroat trout and have been negatively impacted by previous land management activities. Mokins Creek is an important spawning tributary to Hayden Lake. Large clearcuts also significantly reduce the amount of available snag habitat in a localized area.

- Alternative D would remove the greatest amount of vegetation from riparian habitat conservation areas, largely due to road construction and reconstruction, potentially affecting woody debris recruitment to affected stream channels and floodplains. In the case of road reconstruction, watershed recovery is further delayed.

- New permanent roads are proposed in the Beaver Creek watershed, reducing big game security. Based on the map they appear to be ridge roads, but one connects to

a riparian road, indicating long term use of the riparian road is anticipated, raising concerns about continued negative impacts to watershed condition. We support new road construction where the new road is used to replace riparian or other roads slated for obliteration, and where the new road will not significantly impact watershed condition or wildlife security. The new roads proposed in the Beaver Creek drainage do not appear to meet either of these criteria. Could these harvest units be logged with helicopters?

- We recommend the Final EIS clearly depict the miles of proposed reconstructed road which currently exist as brushed in or otherwise unusable by motorized vehicles, and prescribe alternatives which will improve rather than reduce elk security. The Final EIS should also specify a timetable for the removal of temporary roads.

- Fishery benefits would result from obliteration of roads adjacent to Hayden Creek and tributaries, and Jim Creek, and we strongly support those actions. Increased access to 3.9 miles of spawning and rearing habitat for migratory salmonids is anticipated under the preferred alternative, but that is nearly two miles less than what would be provided with Alternative C. We recommend maximizing fish passage in more of the action alternatives, including the preferred alternative. We recommend increasing the number of tributary miles with restored migratory fish access in the final proposal to at least that provided under alternative C.

Summary:

As stated earlier, we do not oppose the idea of salvage logging if the short term impacts to wildlife and fish are minimized. We endorse your proposal to use sale receipts to fund restoration activities that produce long term benefits to fish and wildlife. In our opinion the preferred alternative does not provide adequate restoration to balance the short term impacts and risks to fish and wildlife. We encourage the District to modify alternatives and to develop an alternative which maximizes watershed recovery opportunities, minimizes additional road construction and long term increases in motorized access, and minimizes risks to fish and wildlife. One suggestion is to modify Alternative C to include some of the harvest units in the Hayden Area to allow removal of riparian roads along Hayden Creek tributaries. We also suggest incorporation of a plan to ensure that previously un-drivable roads remain closed to motorized access. We appreciate the ongoing efforts to reduced the amount of proposed new permanent roads under Alternative D. We would welcome the opportunity to discuss new or modified alternatives with you or your staff.

Thanks for the opportunity to comment.

Sincerely,

Greg Tourlotte
Regional Supervisor

GIT:CEC:BH:
C: Tracey Trent, IDFG, Boise
USFWS, Spokane

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USDA Forest Service
David J. Wright
Forest Supervisor
Idaho Panhandle National Forests

USDA Forest Service
Robert L. Vaught
Forest Supervisor
Colville National Forest

March 15, 1999

Gentlemen,
This letter has a dual purpose. First, to express my concerns and critique of the Douglas-fir Beetle Project at the Colville and Idaho Panhandle National Forests. And second, to offer professional assistance in design of plans to restore forest resilience to disturbances and adaptiveness to major changes in environment (e.g. Global Climate Disruptions). Bark beetle risk assessment and silviculture-based hazard reduction measures would be envisioned as a part of such efforts.

My concerns pertain to long term (sustainable) functioning of Interior West Forests in general and Idaho Panhandle and Colville N.F. in particular. Their capacity for sustainable functioning has been compromised and socially desired functions degraded. To correct the situation the causes have to be identified and dealt with.

Causal factors involved in the decline include * logging (high-grading, clear cutting, salvage, ill-designed partial retention cuts), * slash/"brush" treatments, * artificial regeneration (conifer monocultures, "off-siteness"), * exclusion of wildfire and failure to substitute it's ecologically desired effects (nutrient cycling, biodiversity, stocking levels) with other measures, and * introduction of pathogenic organisms (white pine blister rust, larch case bearer, woolly adelgid) and of noxious weeds. We tend to single out those for which we are not responsible; your DEIS is not an exception.

Each of the above factors degrades, *per se* and integratedly, commonly recognized modules of ecological sustainability:
1) productive capacity of soils (function of nutrient cycle and soil's buffering capacity, which in turn is influenced by biotic and functional diversity of plants, succession related changes in forest pattern and processes, and by effects of disturbances);
2) ecosystem's resilience capacity to rebound, after a major disturbances (function of propagule availability on disturbed sites and/or on proximal landscape); and
3) adaptiveness of biota to major changes in environment (function of heterogeneity within species or genetic diversity).

Forest ecosystems in northern parts of the, Intermountain West are characterized by severe reduction in their resilience to disturbances, particularly wildfire.

On warm/dry sites (e.g. Ponderosa pine, and Douglas-fir habitat types) fire exclusion and high grade logging bear the blame. These practices have caused a tie-up of nutrients in Phytomass above ground -- the resulting impairment of nutrient uptake, causes imbalances in mineral nutrient concentrations which affect healthy functioning of trees and predispose trees to defoliating insects, bark beetles, and root rots. All of that results in fuels build up and an extreme fire hazard. Considering prospective increases in extreme weather conditions associated with (ongoing?!) Global Climate Changes, the prospects for sustainable functioning of forests in existing high fire risk conditions are slim indeed.

On warm/moist sites (e.g. Western Red cedar/Western Hemlock habitat types) it is logging and plantation management that bears the blame for a dramatic reduction in forest resilience to physical and biotic disturbance agents. Since the early days until recently the logger's choice was white pine, larch, "old growth" Douglas fir and red cedar.

Partial cuts led to development of mixed conifer stands composed by and large of conifer species that were semi-tolerant and tolerant to shade: (WWP), DF, GF, WRC, WH. Absent in general were shade intolerant conifer species and seral hardwood species. Units dominated by WWP and LCH were clear cut and since about 1930 planted to ponderosa pine, western white pine, or spruce monocultures. Ponderosa pine plantations, regardless of seed origin, were established in "off-site" conditions -- with disastrous results. Spruce plantations exhibit similar "off-site" growth and health problems. White pine plantations became subject to infections by the deadly white pine blister rust disease; at present there are hardly any uninfected trees left.

QUESTIONS pertaining to the DEIS: Are monospecies plantations resilient to disturbances? Is genetic diversity in the population of planted trees similar to that of naturally regenerated trees? Or, which of the two populations has a better chance of adapting to major changes in environmental conditions (e.g. GCC)? How do conifer plantations affect litter decomposition, nutrient cycling, soil biota / chemistry and consequently the productive capacity of soils? What where the ecological roles of shrubs and deciduous tree species established during the early, postfire phase of succession? (There is more to it then the commonly known role of nitrogen fixers!) What were the ecological functions of snags and coarse woody residues -- the legacies from preconflagration forests? Habitats for vertebrate species only?

Even partial answers to these questions indicate that fire, fire facilitated legacies, and plant components of the early post-fire phase of succession -- all of that, exerted a key- restorative role in productive capacity (fertility) of soils and had a bearing on ecosystem resilience to disturbances as well. This soil fertility "boost" phase of a natural post-disturbance succession has been and continues to be disregarded and by design eliminated in plantation management. Your DEIS is again no exception.

Foresters in central Europe are painfully aware of the consequences of such a disregard.

I know that I am taxing Your patience with these lecturing remarks, but
THE ABOVE PRELUDE IS NEEDED FOR THE CRITIQUE OF YOUR DF BEETLE PROJECT, AND AS SUCH A PART OF THE CRITIQUE.

Critical Comments:
"Douglas-fir beetle outbreak".
...misnomer...marketing gimmick... or scare, tactics; whatever. What needs to be seen and preemptively dealt with, is an "outbreak" of breeding sites suitable to several *scolytid* species. Such a supply of bark beetle breeding material was generated in late winter/early spring of 1997 by a severe snow storm event. Broken off Douglas fir tree tops, uprooted trees, bole sections of downed trees, and DF trees with severe "root-sprungs" became infested by *pseudohylesinus nebulosus* (Df pole beetle), and Dendroctonus pseudotsugae (DFBeetle). Massive amount of breeding sites- ->massive brood production. The Pseudohylesinus beetles emerged in June -July 1997, they require maturation feeding in twigs of healthy Df trees for about 2-3 month, once sexually mature they are capable of responding to host and mate produced attractants -- hence by late summer -early fall the pole beetles are able to find trees under moisture stress (stress due to natural drought, natural drought + root injury impaired water uptake, natural.drought + overcrowding effects, etc.) and infest the trees from top down but confined to the tree stem within the crown region. Once girdled the "severed" upper portion of the crown stops translocating photosynthates down-stem to the roots; root growth and

water uptake is impaired. The tree, even though still green, is mortally wounded. The following spring it's lower bole region is subject to successful attacks by the Douglas fir beetles -- the same brood which started in spring 1997. Pole beetles that have not succeeded in finding breeding sites continue "feeding" in twigs and are ready to infest suitable breeding material whenever available during spring early summer of 1998.

Thus, spring of 1998 is characterized by a large population of ready to breed bark beetles. Any broken off top and slash material will become infested by the pole beetles, stem sections by the Douglas fir beetles. But there is not enough breeding material and, as a consequence the attach densities on available stuff are high. The female beetle does not have enough room to construct a long enough gallery to deposit here complement of eggs. Thus during the period of mid-May to mid-July (depending on weather) a lot of females will re-emerge from the overcrowded breeding sites and search for a new suitable site. If the climatic conditions are conducive to high evapotranspiration rates then mature trees with injured roots and impaired water uptake capacity will reach pre-dawn moisture stress levels at which the tree is attractive and susceptible to attack. If there are no such trees, the beetles perish.

The above described situation is, to my knowledge, the situation in which a temporarily weakened Douglas fir tree succumbs to attacks by the DFB. The so called "spill over effect" is possible, but only within a few feet of the pheromone attraction source in case of healthy trees.

Why were large-sized DF "singled" out by the DFB? ...A Large tree means --dominant position in canopy, large surface area exposed to the force of windstorm-->large lever effect, which results in rootlet injury or "root spring" injury. Combine this with large evapotranspiration demands and diminished water uptake and the tree reaches moisture stress levels at which it is incapable of defense against the BB. Other exophysiological explanations are plausible also. Timely applied thinnings (positive selection, thinnings in the CD level) would have strengthened tree resistance to snowbreak, strengthened tree's root system, resulted in increased carbon production and stores ---> led to higher resistance to bark beetles and root rots alike.

WAS THIS DONE ON YOUR FOREST? SHOULD THIS NOT BE THE HIGHEST PRIORITY IN AS YET "BEETLE FREE" OR "LOW RISK" AREAS?

WHY DO YOU FOCUS ON REMOVAL OF DEAD TREES? CERTAINLY NOT TO IMPROVE GROWTH OF THEIR STILL GREEN COHORTS. Actually you may predispose the residual trees to beetle and root rot infestations through the injury inflicted to their roots by vehicular movement; the dead trees may also prevent snowbreak of neighbor trees by providing these with structural support.

Your entomologists are correct -- there is no way to control an "outbreak" population of Douglas fir beetles. But there are measures to reduce the chance for "an outbreak" to develop.
Should climate change scenarios' materialize -- then brace yourself! "beetle outbreaks" (understand populations of susceptible host trees) will be a normal phenomenon! HOW DO WE PROLONG THE LIFE-SPAN OF CURRENTLY ESTABLISHED TREES UNDER SUCH STRESS PRONE CONDITIONS? Act on this. Develop hazard rating scenarios --models which encompass characteristics of site (geological parent material, soil chem./phys. attributes, indices of nutrient cycling, moisture and temperature regimes, eco-physiological conditions of trees and indicators of their development trajectories -- all of that and more and correlate this with information on bionomics and host relationships of major pathogenic organisms, link this to the beetles.

Plan ahead. We must stop chasing a tail of a crisis! We must become prepared for major changes in the ecological systems we are responsible for. If we don't do it fast, we -- forestry, will loose out. If we do not address the challenges effectively, then it perhaps will be better if we loose out!?

Restoration Activities:
Only a short comment. The activities proposed address restoration/improvements of forest functions (e.g. watershed, stream quality, wildlife security (?) -- habitat not much mentioned!?). This are commendable goals, but have a sort of hollow sound, if one considers the fact that all the well intended and costly efforts are applied to forest ecosystems that have a severely compromised and declining *resilience* and have dubious chances to function sustainable.

Activities aimed at restoring "balance" and "historic variability" through "regeneration cuts" (a *novum* and most likely politically correct term for an old fashioned clear cut, I suppose) and planting of conifer trees sounds more as an attempt (and a poorly designed one) to grow valuable wood fiber *a la* industrial forestry then a genuine attempt of ecological restoration.
NOTE the earlier made comments on functions and fertility effects of seral hardwoods and shrubs.

HOW TO HANDLE FOREST UNITS WITH EXCESSIVE, TREE MORTALITY? I am not going to elaborate on this here. This calls for deliberations on representative locations by a professional team and environmentally minded persons. I would enjoy to partake on that.

Forest Fuels:
Since I do not have expertise in fire management, I'll resort only to few comments:
Yes, I concur that fire hazard due to earlier discussed measures (or lack of certain measures) is high and will increase. Fire is the disturbance factor against which the resilience of Interior West forests, particularly those on warm/dry sites is critically degraded. FIRE HAZARD REDUCTION ---> FOREST RESILIENCE RESTORATION through spatial and temporal arrangement of forest structure, increased representation of tree species resistant to fire, and prescribed fire management SHOULD BE THE HIGHEST PRIORITY ON SITES WITH HIGH VALUES AT STAKE. This will require a landscape based and well integrated approach with inputs from other resource specialists, tribal and NGO representatives.

To make fire hazard abatement measures a key feature justifying logging under the DFB project is not a good tactic in my opinion. It strengthens the perception that the proposed Project is not much else but a massive logging operation in disguise.

CONCLUDING REMARKS:
Your staff put a lot of work and good thinking into the project. But the project is not viable as portrayed in the DEIS. I hope that you will be asked to modify it thoroughly. I know that I have been sarcastic with some of my comments; this is my way to air frustrations. I think that I understand from where your people are coming. What I do not know is whether they, and all of us in the, forestry profession, know where are we heading. No one is able to predict the future. But I think that things can be handled better, much better.

Respectfully,

Karl J. STOSZEK, Ph.D.
Professor of Silviculture and Forest Protection

P.S. I contemplate sending copy of this letters to others; I'll keep you posted on that.

UNITED STATES DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
500 NE Multnomah Street, Suite 356
Portland, Oregon 97232-2036

March 11, 1999

Mr. David J Wright, Forest Supervisor
Idaho Panhandle National Forests
2502 East Sherman Ave
Coeur d'Alene ID 83814

Dear Mr. Wright:

The Department of the Interior (Department) reviewed the Draft Environmental Impact Statement for the Douglas-Fir Beetle Project, Idaho Panhandle National Forests and Colville National Forest, Kootenai, Shoshone, and Bonner Counties, Idaho and Pend Oreille County, Washington. The Department does not have any comments to offer.

We appreciated the opportunity to comment.

Sincerely,

Preston A. Sleeger
Regional Environmental Officer

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Upper Columbia River Basin Field Office
11103 East Montgomery Drive, Suite 2
Spokane, Washington 99206

David Wright, Forest Supervisor
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, Idaho 83814-8363

February 3, 1999

Subject: Preliminary Comments on the Proposed Douglas-fir Beetle Project within the Coeur d'Alene Basin(105.0000)

Dear Mr. Wright:

This letter is a follow-up to a January 26, 1999, meeting between staff from my office and staff from both the Idaho Panhandle National Forests and Colville National Forest to discuss the proposed Douglas-fir Beetle Project. The intent of the meeting was to provide an opportunity for information exchange and preliminary discussions of section 7 issues related to the proposed project. The identified purpose of the project is to reduce the potential for adverse environmental consequences that may occur as a result of this beetle outbreak, and to begin restoring the health of the impacted watersheds.

During the meeting, Forest Service staff stated that the proposed project is still undergoing development and some changes in the alternatives may occur, but that currently, the Coeur d'Alene River Ranger District proposes to harvest timber, construct temporary and permanent roads, and install new stream crossings within riparian habitat conservation areas (RHCA). Roads within RHCAs reduce the quantity and quality of fish spawning and rearing habitat and may reduce water quality by contributing to increased sedimentation rates. The Interior Columbia Basin Ecosystem Management Project (ICBEMP) Summary of Scientific Findings indicated that road densities are inversely correlated with aquatic habitat conditions and integrity. Many of the streams within the Coeur d'Alene drainage are already highly degraded because of high road densities and past management activities. Constructing additional roads within a highly roaded watershed is contrary to standards contained in the ICBEMP draft Environmental Impact Statement (EIS). The standards in the draft EIS require the reduction of road densities in watersheds that exceed 1.7 miles/square mile, and stipulate that roads and landings should be located outside of RHCAs. In any event, we expect that INFS standards would be adhered to throughout these watersheds. Therefore, within these watersheds we suggest the types of activities identified above are inappropriate for riparian protection. Any further impacts to RHCAs within this drainage could result in adverse impacts to bull trout (*Salvelinus confluentus*) and/or its habitat, which will require formal consultation under the Endangered Species Act (ESA). We strongly encourage the Forest Service to reconsider the proposal to implement these type of activities within RHCAS.

Furthermore, the Fish and Wildlife Service is conducting a status review of the westslope cutthroat trout (*Oncorhynchus clarki lewisi*), which are present throughout the Coeur d'Alene drainage. During the

status review and the final determination of whether to propose the species for protection under the ESA, the Service is required to consider the type, frequency, and intensity of present and ongoing threats to westslope cutthroat trout and its habitat. The proposed activities described above will further degrade westslope cutthroat trout habitat in the Coeur d'Alene Basin, and will be taken into consideration as an ongoing and increasing threat to the species during our status review. The Service strongly recommends that the Forest Service exercise its authorities under section 7(a)(1) relative to this and other species.

The emphasis in the Coeur d'Alene area should be on restoring the degraded condition of the drainages. Therefore, we recommend using existing stream crossings to access harvest units. If new road construction or reconstruction is needed to access harvest units, we recommend they be built outside of RHCAS. All roads constructed or reconstructed for this project should be fully obliterated and recontoured following project completion. In addition to our suggestions regarding road densities and locations, replacing inadequately sized culverts at current stream crossings with larger culverts (sized to accommodate high flow events) or bridges will further aid in restoring the functionality of these drainages.

If you have any questions regarding our comments, please contact Bryon Holt or Suzanne Audet of my staff (telephone: 509/891-6839; fax: 509/891-6748)

Sincerely,

Philip Laumeyer
Field Supervisor

cc: IDFG, CdA
FS, RI, Missoula

List Of Respondents

Following is a listing of 887 names of individuals, agencies, businesses, government officials, and organizations that responded to the Douglas-fir Beetle Project. A number has been assigned to each letter or verbal comment received. Those letters with illegible names have been added with the information available. Note that some individuals provided more than one letter or verbal comment. A complete list of comments with letter numbers attached is located in the project file and is available upon request. The reason some commentors have numbers higher than 887 is because some individuals received more than one letter number and some documents were submitted that received numbers but were not comments.

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Eastman, David C.	854
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Edwards, Gladys	346
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Egolf, Bill And Barbara	909
Eich, Daniel & Robin	491
Eichler, Peter	114
Ellenberg, Clara Louise	905
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Elliott, Robert And Janet	698
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Elmendorf, Bernie	859
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Ferguson, Howard	711
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Fitzpatrick, Timothy J.	175
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Foust, Tom C.	453
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Frase, Marianne & Ronald	263
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Frew, Diane	350
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G, Gary	129/130/131
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Gantenbein, Richard	595
Garcia, Roberto	65
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APPENDIX D - UNIT AND ROAD INFORMATION

INTRODUCTION

This appendix provides specific information for proposed harvest and road work on each Ranger District, as described below. A legend is displayed with each table, based on the following definitions.

Unit Information Tables

The "Unit Information" tables display the following information:

Analysis Area Name: Effects were assessed at the smaller-scale tributaries of the watersheds, as listed in each table.

Unit Number: Each harvest unit is assigned a unique number for tracking purposes.

ACRES: The number of acres within the harvest unit boundary.

Harvest Prescription: Proposed harvest prescriptions fall into two categories, "Regeneration Harvest" (or "Harvest with Reforestation") and "Selective Harvest." Under these two harvest categories there would be several silvicultural prescriptions. The harvest prescription or combination of harvest prescriptions that would be used under each alternative is identified using the codes below. The following describes the activities and an approximation of what these harvest treatments would look like.

r - <u>Regeneration Harvest (or Harvest with Reforestation):</u> These areas include forest stands in which the Douglas-fir bark beetle has led to or contributed to high mortality in the stand (other disturbance agents, in addition to the bark beetles, which have caused high mortality in the forest stand may include wind, snow, ice, or root disease). Generally these are stands of at least five acres in size where greater than 50% of the trees are dead, dying, or are expected to die during the bark beetle outbreak (for Newport, these are stands where less than 40 square feet of live basal area remain). Harvesting involves removing most of the dead trees and some green trees for the purpose of providing growing space for planted seedlings to become established. Live and dead trees would be retained in an irregular spacing to provide wildlife habitat, maintain visual quality, provide some shelter for seedling establishment, provide a seed source for natural regeneration, and provide woody debris for long term site productivity. Generally there would be less than 30% of the trees remaining on these areas and the general view would be openings with scattered trees and clumps or patches of leave trees. Most of these retained trees would remain on site for a considerable time after seedlings have established. The size of the open areas created by the beetles and other disturbance agents, and described above, would range from approximately 5 acres to 300 acres following the pattern of openings created by the beetles. After harvest, logging slash and other debris would be treated, where necessary, to reduce the fire hazard and, on the IPNF, to prepare these sites for reforesting. Prescribed fire or mechanical methods would be used for these treatments. Most of the areas would be planted with the tree species of western larch, ponderosa pine, and/or white pine The silvicultural prescriptions may include regeneration systems such as the following:

GS - **Group selection:** the periodic removal of trees in small groups, resulting in openings that are at least one and one-half times the height of the trees removed. The objective is to create a balance of size and age in a mosaic of contiguous groups.

ST - **Seed tree:** the cutting of all trees except for a small number of widely dispersed trees retained for seed production and to produce a new age class in fully exposed microenvironment. Some or all of the shelter trees may be retained after regeneration has become established to attain goals other than regeneration.

SW - **Shelterwood:** the cutting of most trees, leaving those needed to produce sufficient shade to produce a new age class in a moderated microenvironment. Some or all of the shelter trees

may be retained after regeneration has become established to attain goals other than regeneration.

s - **Selective Harvest:** Most selective harvest would occur in forest stands where less than 50% of the stand is dead, dying, or expected to die from the bark beetle and other disturbance agents. However, due to special management concerns such as public safety, maintaining visual quality, or to meet specific wildlife habitat requirement, some selective harvest would be done in areas where more than 50% of the stand is dead or dying (for the Newport Ranger District, selective harvest would be used in all stands where greater than 40 square feet of live basal area remain) . On most areas, selective harvest would remove only dead trees; but in some areas, where there is the opportunity to maintain or enhance the growth of the desired western larch or ponderosa pine or move the stand towards desired structural stages, green trees, in addition to the dead trees would be removed. The green trees to be removed would generally be the smaller trees which would be "thinned out." Most stands that are described as selective harvest would not be open enough to allow for successful establishment of desired tree species. The number of trees remaining in these areas would vary, but stands would generally not look much different than before harvest except for fewer trees. Following harvest, fuel hazards may be reduced by use of fire or mechanical methods where these are appropriate. The silvicultural prescriptions may include treatments such as the following:

IC - **Improvement cut:** the removal of less desirable trees of any species in a stand of poles or larger trees, primarily to improve composition and quality.

SA - **Salvage:** the removal of dead trees or trees damaged or dying because of injurious agents other than competition, to recover economic value that would otherwise be lost.

TH - **Thinning:** a cultural treatment made to reduce stand density of trees primarily to improve growth and enhance forest health, or recover potential mortality.

ctwl - commercial thin of western larch

ctpp - commercial thin of ponderosa pine

LOGGING SYSTEM: The logging system or combination of logging systems that would be used under each alternative is identified using the following codes:

C - Cable
H - Helicopter
S - Skyline
T - Tractor

Fuel Treatment: The fuel treatment or combination of fuel treatments that would be used under each alternative is identified using the following codes:

GP - Grapple pile: Woody fuel or slash is piled for burning using an excavator-type machine, capable of working in forest ecosystems on moderately steep slopes. The objective is to reduce forest fuel concentrations to reduce fire intensities.

LS - Lop and scatter: Branches are cut from felled trees to a predetermined height then scattered to reduce fuel concentrations. The objective is to rearrange the fuel so as to eliminate concentrations and break up vertical and horizontal continuity. Generally this treatment hastens natural decomposition and improves esthetic qualities of the treated area.

UB - Underburn: This is a method designed to meet various resource objectives where a tree canopy is present and is to be preserved. The treatment reduces woody debris, provides site preparation for natural or artificially planted regeneration and eliminates unwanted vegetation. Underburning can also improve wildlife habitat.

YT - Yard tops: Employing top attached yarding methods, woody debris is removed from sites to roadside landings where the woody debris can be burned safely and inexpensively.

JP - Jackpot Burning: A modified method of broadcast burning used primarily to burn concentrations of fuel where the fuelbed is not continuous.

Over 40 Acres: An "X" in this column indicates that the unit, either independently or when considered with the area surrounding the unit, would create an opening in excess of 40 acres. In some cases, regeneration openings on the IPNF would exceed 40 acres and openings up to several hundred acres in size could result. These harvest units are located where Douglas-fir beetles in conjunction with root disease and storm damage of 1996-97 are projected to kill the majority of trees in large areas. Because these openings are a result of natural occurrences, approval by the Regional Forester of the Northern Region is not required (USDA Northern Regional Guide, Chapter 2 and 36 CFR 219.27 (d)(2)(iii)). These areas would be irregular in shape, with small groups of trees and individuals unaffected by the beetles. Some green trees would be harvested to improve survival and growth of early seral species but enough trees would be retained for structural diversity, wildlife snags, long term site productivity, and site protection.

Regeneration harvest on the Newport portion of the project would only be done in stands where less than 40 square feet of basal area of live trees remain after the beetle infestation, for a total of about 29 acres. No live trees 21 inches in diameter or larger would be removed on the Newport District, in compliance with Regional Forester's Amendments No. 1 and 2 (Pacific Northwest Region only). Similarly, there would be openings created by the beetle that would exceed 40 acres on Newport District, but approval of the Regional Forester of the Pacific Northwest Region would not be required (USDA Forest Service, Pacific Northwest Regional Guide, and 36 CFR 219.27).

Sensitive Plant Surveys: An "X" in this column indicates that a survey may need to be conducted for Sensitive plants, depending on the specific harvest prescription, logging systems, and fuels treatment identified under the alternative selected for implementation. Rare plant field surveys have been done for unrelated projects in the analysis areas. Some of the past surveys occurred in areas proposed for activities in this assessment, and may be utilized for this proposal. No sensitive plant surveys have yet been conducted specifically for this project. Surveys are planned to commence in the spring of 1999, to be completed prior to project implementation. Additional survey information is provided in the project files ("TES Plants").

Some cells in the Unit Information Tables are blank - this means there is no activity proposed in the unit under that specific alternative. Also, there are no Alternative G columns under "Harvest Prescription" or "Logging System," because there is no timber harvest proposed under Alternative G (only fuel treatment activities).

Abbreviations Used in the "Unit Information" Tables

HARVEST PRESCRIPTION:

r - Regeneration Harvest (or Harvest with Reforestation):

- GS - Group selection
- ST - Seed tree
- SW - Shelterwood

s - Selective Harvest:

- IC - Improvement cut
- SA - Salvage
- TH - Thinning
- ctwl - commercial thin of western larch
- ctpp - commercial thin of ponderosa pine

LOGGING SYSTEM:

- C - Cable
- H - Helicopter
- S - Skyline
- T - Tractor

FUEL TREATMENT:

- GP - Grapple pile
- LS - Lop and scatter
- UB - Underburn
- YT - Yard tops
- JP - Jackpot burning

Tear this sheet out for handy reference

Table D-1. Alternative B - Unit Information, Coeur d'Alene River Ranger District

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Hayden	2	11	s	S	YT		
Hayden	3	42	s	S-H	YT		X
Hayden	4	19	r	H	UB		X
Hayden	5	21	s	S	YT		X
Hayden	6	78	s	S-H-T	YT		X
Hayden	7	29	s	S-H	YT		X
Hayden	8	19	s	S	YT		
Hayden	9	65	s	T-S	YT		
Hayden	10	10	s	H	YT		
Hayden	11	17	s	H	YT		
Hayden	12	20	s	S	YT		X
Hayden	13	98	s	H	YT		
Hayden	14	83	s	H	YT		
Hayden	15	5	s	H	YT		
Hayden	16	13	r	H	UB		X
Hayden	17	9	s	H	YT		
Hayden	18	15	r	S	UB		
Hayden	19	258	s	T-H	YT		
Hayden	20	21	s	H	YT		
Hayden	21	22	r	S	UB		
Hayden	22	98	s	T-S-H	YT		X
Hayden	23	21	s	S	YT		
Hayden	24	5	s	C	YT		X
Hayden	25	44	s	H	YT		
Hayden	26	30	r	T-S	GP		
Hayden	27	18	s	H	YT		
Hayden	28	15	s	H	YT		
Hayden	29	22	s	H	YT		
Hayden	31	288	s	T-S-H	YT		
Hayden	32	13	s	H	YT		
Cda	34	423	s	H-S	YT		
Hayden	35	17	s	H	YT		
Hayden	36	14	r	S	UB		X
Hayden	37	48	s	H	YT		
Hayden	38	493	s	S-H	YT		
Hayden	39	23	s	H	YT		
Hayden	40	45	s	H	YT		
Cda	41	34	s	S	YT		X
Hayden	42	13	s	H	YT		
Hayden	43	13	s	H	YT		
Hayden	44	11	s	H	YT		
Hayden	45	39	s	H	YT		
Cda	46	19	s	T-S	YT		X
Cda	47	16	s	S	YT		
Cda	48	17	s	H	YT		
Cda	50	92	s	H	YT		
Cda	51	18	s	S	YT		X
Cda	52	162	s	T-H	YT		
Cda	53	45	s	H	YT		
Cda	54	22	r	T-S	UB		X

Table D-1. (Alternative B continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	55	55	s	H	YT		
Cda	56	258	s	H	YT		
Cda	57	325	s	H	YT-UB		X
Steamboat	62	92	s	S-T-H	YT		X
Cda	63	15	s	H	YT		
Hart	64	84	s	S-H	YT		
Cda	65	397	s	H	YT		X
Cda	66	47	s	H	YT		
Cda	67	15	s	H	YT		
Cda	68	81	s	T-H	YT		
Cda	69	62	s	S-H	YT		
Cda	70	14	s	S	YT		X
Cda	71	17	s	S	YT		X
Steamboat	72	4	s	H	YT		X
Steamboat	73	2	s	S	YT		
Cda	74	18	s	S	YT		X
Cda	75	26	s	S	YT		X
Cda	76	32	s	H	YT		X
Cda	77	24	s	H	YT		
Hart	79	20	r	S	UB		
Hart	80	22	s	S	YT		
Hart	81	13	s	S	YT		X
Hart	82	41	s	S	YT		X
Cda	83	9	s	S	YT		X
Hart	84	17	r	S	UB		
Cda	85	31	s	H	YT		X
Hart	86	7	s	S	YT		
Cda	87	24	s	H	YT		X
Cda	88	98	s	H	YT		
Cda	90	17	s	H	YT		
Cda	91	52	s	S	YT		
Cda	92	70	s	T-S	YT		X
Cda	93	15	s	T	YT		X
Cda	94	85	s	T-S	YT		
Cda	95	16	s	T	YT		
Cda	96	38	s	T	YT		
Beaver	97	78	s	H	YT		
Cda	98	102	s	T-S	YT		
Bumblebee	99	19	r	S	UB		X
Bumblebee	100	64	s	S	YT		
Beaver	101	50	s	T-S	YT		X
Beaver	102	10	r	S	UB		
Beaver	103	24	s	S	YT		X
Beaver	105	20	s	S	YT		
Beaver	106	5	r	T-S	UB		
Beaver	107	50	s	T-S	YT		X
Beaver	110	53	s	T-H	YT		X
Beaver	111	4	r	T-S	UB		
Beaver	113	15	r	T-S	UB		X
Beaver	114	18	s	H	YT		

Table D-1. (Alternative B continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Beaver	115	10	r	H	UB		
Beaver	116	7	r	S	UB		
Beaver	117	16	r	T-S	UB		
Cda	119	25	s	H	YT		
Cda	120	15	r	S-H	UB		X
Beaver	121	26	r	H	UB		X
Beaver	123	11	s	H	YT		
Beaver	124	65	s	H	YT		
Beaver	126	41	s	H	YT		
Beaver	127	12	r	H	UB		X
Beaver	129	10	r	H	UB		X
Beaver	130	22	r	S	UB		X
Beaver	131	7	r	S	UB		X
Cda	133	38	s	H	YT		
Cda	138	61	s	H	YT		
Chain	139	132	s	T-S-H	YT		
Chain	140	85	s	H	YT		
Chain	141	29	s	H	YT		
Cda	142	9	s	S-H	YT		X
Cda	143	96	s	H-S	YT		X
Cda	145	84	s	S-H	YT		
Cda	146	71	s	H	YT		
Cda	147	69	s	H	YT		
Cda	149	25	s	H	YT		
Chain	151	57	s	S	YT		
Chain	152	205	s	T-S-H	YT		
Cda	153	117	s	H	YT		
Chain	154	232	s	S-H	YT		
Cda	155	208	s	T-H	YT		
Cda	156	50	s	T-S	YT		
Cda	157	80	s	T-S	YT		X
Chain	158	231	s	T-S-H	YT		
Chain	159	33	r	T-S-H	UB		
Chain	160	237	s	S-H	YT		X
Chain	161	161	s	S-H	YT		
Cda	162	78	s	T-S-H	YT		
Cda	163	52	r	H	UB	X	X
Chain	164	49	r	H	UB	X	X
Chain	165	21	r	S	UB		
Chain	166	118	s	S-H	YT		
Chain	167	21	s	S	YT		X
Chain	168	24	r	H	UB		X
Hayden	170	69	s	T-H	YT		
Hayden	171	48	r	S-H	UB	X	
Hayden	172	44	r	T-S	UB	X	
Hayden	173	16	s	T-H	YT		
Hayden	174	11	s	T	YT		
Cda	176	34	s	S-H	YT		
Chain	177	28	r	H	UB		X
Cda	178	80	s	H	YT		

Table D-1. (Alternative B continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	179	38	s	S-H	YT		
Cda	181	150	s	T-S-H	YT		
Cda	182	33	s	S	YT		X
Chain	184	13	s	C	YT		X
Chain	185	269	s	S-T	YT		X
Chain	186	61	s	T-S	YT		X
Hayden	187	13	r	S	UB		
Hayden	188	17	r	H	UB		
Hayden	189	20	r	H	UB		
Hayden	190	24	s	H	YT		
Hayden	191	20	r	S	UB		
Hayden	192	9	s	H	YT		X
Hayden	193	16	r	T-S	UB		
Hayden	196	22	r	S	UB		X
Hayden	198	8	r	S	UB		
Hayden	199	8	r	S	UB		X
Hayden	200	19	s	H	YT		
Cda	202	19	s	S	YT		
Cda	203	20	s	T-S	YT		X
Cda	204	80	s	T-H	YT		
Bumblebee	205	14	s	T	YT		
Bumblebee	206	9	s	S	YT		
Cda	207	19	s	H	YT		
Cda	208	8	s	S	YT		
Cda	209	7	s	S	YT		
Cda	210	59	s	H	YT		
Cda	211	20	s	H	YT		
Beaver	212	28	s	T-S	YT		X
Beaver	213	6	s	H	YT		
Hayden	226	13	s	H	YT		
Cda	244	8	s	S	YT		X
Cda	246	10	s	T-S	YT		X
Cda	247	11	s	S	YT		X
Chain	311	6	s	T-S	YT		X
Chain	312	20	r	S-H	UB		X
Chain	313	67	s	H	YT		
Chain	314	59	s	H	YT		
Hayden	317	22	s	T-S	YT		X
Cda	318	13	s	T-S	YT		X
Hayden	321	9	s	H	YT		
Hayden	322	53	r	S	GP	X	
Hayden	323	4	s	S	YT		X
Hayden	324	6	r	S	GP		X
Hayden	325	9	s	H	YT		

Table D-2. Alternative C - Unit Information, Coeur d'Alene River Ranger District

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Hayden	2	11	s	S	YT		
Hayden	3	42	s	S-H	YT		X
Hayden	4	19	r	H	UB		X
Hayden	5	21	s	S	YT		X
Hayden	6	78	s	S-H-T	YT		X
Hayden	7	29	s	S-H	YT		X
Hayden	8	19	s	S	YT		
Hayden	9	65	s	H	YT		
Hayden	10	10	s	H	YT		
Hayden	11	17	s	H	YT		
Hayden	12	20	s	S	YT		X
Hayden	13	98	s	H	YT		X
Hayden	14	83	s	H	YT		
Hayden	15	5	s	H	YT		
Hayden	16	13	r	H	UB		X
Hayden	17	9	s	H	YT		
Hayden	18	15	r	S	UB		
Hayden	19	258	s	T	YT		
Hayden	20	21	s	H	YT		
Hayden	21	22	r	S	UB		
Hayden	22	98	s	T-S-H	YT		X
Hayden	23	21	s	S	YT		
Hayden	24	5	s	C	YT		X
Hayden	25	44	s	H	YT		
Hayden	26	30	r	T-S	GP		
Hayden	27	18	s	H	YT		
Hayden	28	15	s	H	YT		
Hayden	29	22	s	H	YT		
Hayden	31	288	s	S-H	YT		
Hayden	32	13	s	H	YT		
Cda	34	424	s	H-S	YT		
Hayden	35	17	s	H	YT		
Hayden	36	14	r	S	UB		X
Hayden	37	48	s	H	YT		
Hayden	38	493	s	S-H	YT		
Hayden	39	23	s	H	YT		
Hayden	40	45	s	H	YT		
Cda	41	34	s	S	YT		X
Hayden	42	13	s	H	YT		
Hayden	43	13	s	H	YT		
Hayden	44	11	s	H	YT		
Hayden	45	39	s	H	YT		
Cda	46	19	s	H	YT		
Cda	47	16	s	S	YT		
Cda	48	17	s	H	YT		
Cda	50	92	s	H	YT		
Cda	51	18	s	H	YT		
Cda	52	162	s	H	YT		
Cda	53	45	s	H	YT		
Cda	54	22	r	T-H	UB		X

Table D-2. (Alternative C continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	55	55	s	H	YT		
Cda	56	258	s	H	YT		
Cda	57	325	s	H	YT		
Steamboat	62	92	s	S-T-H	YT		X
Cda	63	15	s	H	YT		
Hart	64	84	s	S-H	YT		
Cda	65	397	s	H	YT		X
Cda	66	47	s	H	YT		
Cda	67	15	s	H	YT		
Cda	68	81	s	T-H	YT		
Cda	70	14	s	S	YT		X
Cda	71	17	s	S	YT		X
Steamboat	72	4	s	H	YT		
Steamboat	73	2	s	S	YT		X
Cda	74	18	s	S	YT		X
Cda	75	26	s	S	YT		X
Cda	76	32	s	H	YT		
Cda	77	24	s	H	YT		
Hart	79	20	r	S	UB		X
Hart	80	22	s	S	YT		X
Hart	81	13	s	S	YT		X
Hart	82	41	s	S	YT		X
Cda	83	9	s	H	YT		
Hart	84	17	r	S	UB		X
Cda	85	31	s	H	YT		
Hart	86	7	s	S	YT		X
Cda	87	24	s	H	YT		
Cda	88	98	s	H	YT		
Cda	90	17	s	H	YT		
Cda	91	52	s	S	YT		X
Cda	92	70	s	T-S	YT		X
Cda	93	15	s	T	YT		
Cda	94	85	s	T-S	YT		
Cda	95	16	s	T	YT		
Cda	96	38	s	S	YT		
Beaver	97	78	s	H	YT		
Cda	98	102	s	T-S	YT		
Bumblebee	99	19	r	S	UB		X
Bumblebee	100	64	s	H	YT		
Beaver	101	50	s	T-S	YT		X
Beaver	102	11	r	S	UB		
Beaver	103	24	s	S	YT		X
Beaver	105	20	s	S	YT		
Beaver	106	5	r	H	UB		
Beaver	107	50	s	T-S	YT		X
Beaver	110	53	s	T-H	YT		X
Beaver	111	4	r	H	UB		
Beaver	113	15	r	H	UB		X
Beaver	114	18	s	H	YT		
Beaver	115	10	r	H	UB		

Table D-2. (Alternative C continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Beaver	116	7	r	S	UB		
Beaver	117	16	r	H	UB		
Cda	119	25	s	H	YT		
Cda	120	15	r	S-H	UB		X
Beaver	121	26	r	H	UB		
Beaver	123	11	s	H	YT		
Beaver	124	65	s	H	YT		
Beaver	126	41	s	H	YT		
Beaver	127	12	r	H	UB		X
Beaver	129	10	r	H	UB		X
Beaver	130	22	r	H	UB		X
Beaver	131	7	r	H	UB		X
Cda	133	38	s	H	YT		
Cda	138	61	s	H	YT		
Chain	139	131	s	T-S-H	YT		
Chain	140	85	s	H	YT		
Chain	141	29	s	H	YT		
Cda	142	9	s	S-H	YT		X
Cda	143	96	s	H-S	YT		
Cda	145	84	s	S-H	YT		
Cda	146	71	s	H	YT		
Cda	147	69	s	H	YT		
Cda	149	25	s	H	YT		
Chain	151	56	s	S	YT		
Chain	152	205	s	T-S-H	YT		
Cda	153	117	s	H	YT		
Chain	154	232	s	S-H	YT		
Cda	155	208	s	T-H	YT		X
Cda	156	50	s	H	YT		
Cda	157	80	s	T-S	YT		X
Chain	158	231	s	H	YT		
Chain	159	33	r	S-H	UB		
Chain	160	236	s	S-H	YT		X
Chain	161	161	s	S-H	YT	X	
Cda	162	77	s	T-S-H	YT	X	X
Cda	163	52	r	H	UB		X
Chain	164	49	r	H	UB		X
Chain	165	21	r	S	UB		
Chain	166	118	s	S-H	YT		
Chain	167	21	s	S	YT		X
Chain	168	24	r	H	UB		X
Hayden	170	69	s	H	YT		
Hayden	171	48	r	H S	UB	X	
Hayden	172	44	r	H	UB	X	
Hayden	173	16	s	H	YT		
Hayden	174	11	s	S	YT		
Cda	176	34	s	S-H	YT		
Chain	177	28	r	H	UB		X
Cda	178	80	s	H	YT		
Cda	179	38	s	H	YT		

Table D-2. (Alternative C continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	181	150	s	S H	YT		
Cda	182	33	s	S	YT		X
Chain	184	13	s	C	YT		X
Chain	185	268	s	S-H	YT		
Chain	186	61	s	S	YT		X
Hayden	187	13	r	S	UB		
Hayden	188	17	r	H	UB		
Hayden	189	20	r	H	UB		
Hayden	190	24	s	H	YT		
Hayden	191	20	r	S	UB		
Hayden	192	9	s	H	YT		
Hayden	193	16	r	S	UB		
Hayden	196	22	r	S	UB		X
Hayden	198	8	r	S	UB		
Hayden	199	8	r	S	UB		X
Hayden	200	19	s	H	YT		
Cda	202	19	s	S	YT		
Cda	203	20	s	T-S	YT		X
Cda	204	80	s	H	YT		
Bumblebee	205	14	s	T-H	YT		
Bumblebee	206	9	s	H	YT		
Cda	207	19	s	H	YT		
Cda	208	8	s	S	YT		
Cda	209	7	s	S	YT		
Cda	210	59	s	H	YT		
Cda	211	20	s	H	YT		
Beaver	212	28	s	T-S	YT		X
Beaver	213	6	s	H	YT		
Hayden	226	13	s	H	YT		
Cda	244	8	s	S	YT		
Cda	246	10	s	H	YT		
Cda	247	11	s	H	YT		
Chain	311	6	s	T-S	YT		X
Chain	312	20	r	S-H	UB		X
Chain	313	68	s	H	YT		
Chain	314	59	s	H	YT		
Hayden	317	22	s	T-S	YT		X
Cda	318	13	s	T-S	YT		X
Hayden	321	9	s	H	YT		
Hayden	322	53	r	S	GP	X	
Hayden	323	4	s	S	YT		X
Hayden	324	6	r	S	GP		X
Hayden	325	9	s	H	YT		

Table D-3. Alternative D - Unit Information, Coeur d'Alene River Ranger District

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Hayden	2	11	s	S	YT		
Hayden	3	42	s	S-H	YT		X
Hayden	4	19	r	H	UB		X
Hayden	5	21	s	S	YT		X
Hayden	6	78	s	S-H-T	LS		X
Hayden	7	29	s	S	YT		X
Hayden	8	19	s	S	YT		X
Hayden	9	65	s	T-S	YT		X
Hayden	10	10	s	H	LS		
Hayden	11	17	s	H	LS		
Hayden	12	20	s	S	YT		
Hayden	13	73	s	H	LS		
Hayden	14	83	s	H	LS		
Hayden	15	5	s	H	LS		
Hayden	16	13	r	H	UB		X
Hayden	17	9	s	H	LS		
Hayden	18	15	r	S	UB		
Hayden	20	21	s	H	LS		
Hayden	21	22	r	S	UB		
Hayden	22	98	s	T-S-H	LS		X
Hayden	23	21	s	S	YT		
Hayden	24	5	s	C	YT		X
Hayden	25	44	s	H	LS		
Hayden	26	30	r	T-S	UB		
Hayden	27	18	s	T-S	YT-LS		
Hayden	28	15	r	T-S	JP		
Hayden	29	22	r	T-S	UB		
Hayden	31	288	s	T-S-H	LS		
Hayden	32	13	s	H	LS		
Cda	34	398	s	S-H	YT		X
Hayden	35	17	r	H	JP		X
Hayden	36	14	r	S	UB		X
Hayden	37	48	s	H	YT-LS		
Hayden	38	493	s	S-H	LS-YT		
Hayden	39	23	r	H	JP		
Hayden	40	44	s	H	LS-YT		
Cda	41	34	s	S	YT		X
Hayden	42	13	r	H	JP		X
Hayden	43	13	r	H	JP		X
Hayden	44	11	r	H	JP		X
Hayden	45	39	s	H	YT-LS		
Cda	46	19	s	T-S	LS		X
Cda	47	16	s	S	LS		X
Cda	48	17	s	H	LS		
Cda	50	93	s	H	LS-YT		
Cda	51	18	s	S	LS		X
Cda	52	162	s	S-H	LS		
Cda	53	45	s	H	YT		
Cda	54	22	r	T-S	UB		X
Cda	55	55	s	H	LS		

Table D-3. (Alternative D continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	56	258	s	H	YT		
Cda	57	328	s	H	YT-LS-UB		X
Steamboat	62	92	s	S-T-H	YT		X
Cda	63	15	s	H	LS		
Hart	64	84	s	S-H	YT		X
Cda	65	396	s	T-S-H	YT-UB		X
Cda	66	46	s	H-T	YT-LS		X
Cda	67	15	s	T	LS		
Cda	68	81	ctpp	H	UB		
Cda	69	62	s	S-H	YT		X
Cda	70	14	s	S	YT		X
Cda	71	17	s	S	YT		X
Steamboat	72	4	s	H	YT		
Steamboat	73	2	s	S	YT		X
Cda	74	18	s	S	LS		X
Cda	75	26	s	S	LS		X
Cda	76	31	s	T-S	LS		
Cda	77	24	s	S	YT		
Hart	79	20	r	S	UB		X
Hart	80	22	s	S	YT		X
Hart	81	13	s	S	YT		X
Hart	82	41	s	S	YT		X
Hart	84	17	r	S	UB		X
Cda	85	31	s	T-S	LS		X
Hart	86	7	s	S	YT		X
Cda	87	24	s	H	LS		
Cda	88	98	s	H	LS		
Cda	90	17	s	T-S	LS		X
Cda	91	52	s	S	LS		X
Cda	92	70	s	T-S	LS		X
Cda	93	15	s	T	LS		
Cda	94	85	s	T-S	LS		
Cda	95	16	s	T	LS		
Cda	96	38	s	T	LS		
Beaver	97	78	s	H	YT		
Cda	98	102	s	T-S	LS		X
Bumblebee	99	19	r	S	UB		
Bumblebee	100	64	r	S	UB	X	
Beaver	101	50	s	T-S	LS		X
Beaver	102	11	r	S	UB		
Beaver	103	24	s	S	YT		X
Beaver	105	20	s	S	LS		
Beaver	106	5	r	T-S	UB		
Beaver	107	50	s	T-S	YT		X
Beaver	110	53	s	T-S	LS		X
Beaver	111	4	r	T-S	UB		
Beaver	113	15	r	T-S	UB		X
Beaver	114	18	r	H	UB		X
Beaver	115	10	r	S	UB		
Beaver	116	7	r	S	UB		

Table D-3. (Alternative D continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Beaver	117	16	r	T-S	UB		
Cda	119	25	s	H	LS		
Cda	120	15	r	H-S	UB		X
Beaver	121	26	r	H	UB		X
Beaver	123	11	s	H	YT		
Beaver	124	65	s	S	YT		X
Beaver	126	41	s	S	YT		X
Beaver	127	12	r	S	UB		X
Beaver	129	10	r	S	UB		X
Beaver	130	22	r	S	UB		X
Beaver	131	7	r	S	UB		X
Cda	133	38	s	T	LS		X
Cda	138	61	s	H	YT-LS		
Chain	139	131	s	T-S-H	LS-YT		
Chain	140	85	s	H	LS		
Chain	141	29	r	H	UB		X
Cda	142	9	s	S-H	LS		X
Cda	143	96	s	H-S	LS		X
Cda	145	84	s	S-H	LS		
Cda	146	71	s	H	LS		
Cda	147	69	s	H	LS		
Cda	149	25	s	H	LS		
Chain	151	57	s	S	LS		
Chain	152	205	s	T-S-H	LS		X
Cda	153	66	s	H	LS		
Chain	154	232	s	S-H	LS		
Cda	155	208	s	T-H	LS		X
Cda	156	50	s	H	LS		
Cda	157	80	s	T-S	YT		X
Chain	158	241	s	T-S-H	LS		
Chain	159	33	r	T-S-H	UB		
Chain	160	237	s	S-H	LS		X
Chain	161	161	s	S-H	LS		X
Cda	163	52	r	S-H	UB	X	X
Chain	164	49	r	H	UB	X	X
Chain	165	21	r	S	UB		
Chain	166	118	s	S-H	LS		X
Chain	167	21	s	S	LS		X
Chain	168	14	r	H	UB		X
Hayden	170	69	s	T-H	LS		
Hayden	171	48	r	S-H	UB	X	
Hayden	172	44	r	T-S	UB	X	
Hayden	173	17	s	T-H	LS		
Hayden	174	11	s	T	YT		
Cda	176	34	s	S-H	LS		X
Chain	177	28	r	H	UB		X
Cda	178	80	s	H	LS		
Cda	179	38	s	S-H	LS		
Cda	181	151	s	T-S-H	LS		
Cda	182	33	s	S	LS		X

Table D-3. (Alternative D continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Chain	184	13	s	C	LS		X
Chain	185	128	s	T-S	LS		X
Chain	186	61	s	T-S	LS		X
Hayden	187	13	r	S	UB		
Hayden	188	17	r	S	UB		
Hayden	189	20	r	T-S	UB		
Hayden	190	24	r	H	JP		
Hayden	191	20	r	S	UB		
Hayden	192	9	s	H	LS		
Hayden	193	16	r	T-S	JP		
Hayden	196	22	r	S	UB		X
Hayden	198	8	r	S	UB		
Hayden	199	8	r	S	UB		X
Hayden	200	19	r	H	JP		
Cda	203	20	s	T-S	YT		X
Cda	204	80	s	T-H	YT		X
Bumblebee	205	14	s	H	YT		
Bumblebee	206	9	s	S	YT		
Cda	207	19	s	H	YT		
Cda	208	8	s	S	LS		
Cda	209	7	s	S	LS		
Cda	210	59	ctwl	H	LS		
Cda	211	20	ctwl	H	LS		
Beaver	212	28	s	T-S	YT		X
Beaver	213	6	s	H	YT		
Hayden	215	39	ctwl	T	LS		
Hayden	216	14	s	S	YT		
Hayden	217	6	ctwl	T-S	LS		
Hayden	218	48	s	T-S	YT		
Hayden	219	27	s	S	YT		
Hayden	220	47	s	S	YT		
Hayden	221	36	s	H	LS		
Hayden	222	68	s	H	LS		
Hayden	223	19	s	H	LS		
Hayden	224	32	s	T-S-H	LS		
Hayden	225	63	s	H	LS		
Hayden	226	14	s	H	LS		
Hayden	228	25	ctpp	H	UB		
Hayden	229	11	r	H	UB		
Hayden	230	207	s	T-H	LS-YT		
Hayden	231	41	ctpp	H	UB		
Hayden	232	31	s	T-S	YT		
Hayden	233	18	s	T-S	YT		
Hayden	234	120	s	S	YT		X
Hayden	235	43	s	T-S	LS		X
Hayden	236	30	ctpp	S	UB		X
Hayden	237	35	ctpp	T	UB		X
Hayden	238	18	ctpp	S	UB		X
Hayden	240	51	ctpp	H	UB		X
Hayden	241	37	ctwl	S-H	LS		

Table D-3. (Alternative D continued)

Analysis Area Name	Unit #	Acres	Harvest Prescription	Logging System	Fuel Treatment	Over 40 Acres	Sensitive Plant Surveys
Cda	242	26	r	H	UB		X
Cda	244	52	ctpp	S	UB		X
Cda	245	14	ctpp	S	UB		X
Cda	246	10	s	T-S	LS		X
Cda	247	20	ctpp	S	UB		X
Cda	252	42	ctpp	T-S	UB		X
Cda	253	9	ctpp	S	UB		
Cda	254	21	s	S	YT		X
Cda	256	30	s	T	YT		X
Cda	263	29	ctwl	T-S	LS		
Cda	264	120	ctwl	H	LS		
Cda	265	45	ctwl	T-S	LS		
Cda	266	37	ctpp	S	UB		X
Cda	267	10	s	H	LS		
Cda	268	92	s	S-H	LS		
Chain	269	26	s	H	LS		
Chain	270	47	s	H	LS		
Chain	271	85	s	H	LS-YT		
Chain	272	40	s	S	LS		
Chain	273	43	ctpp	T-S	UB		X
Chain	274	35	ctpp	T-S	UB		
Chain	275	33	s	T-S	LS		X
Chain	276	29	s	T-S	LS		X
Chain	277	12	r	T-S	UB		
Cda	280	20	s	S	YT		
Cda	281	40	s	S	LS		
Cda	284	4	s	H	LS		
Cda	287	26	ctpp	S	UB		X
Cda	288	17	ctpp	H	UB		X
Cda	289	31	ctpp	H	UB		X
Cda	290	23	ctpp	H	UB		
Cda	291	41	ctwl	S-H	YT		X
Cda	293	14	s	S	YT		X
Cda	295	5	s	T-S-H	LS		X
Cda	296	12	s	S	YT		X
Cda	297	27	s	S	YT		X
Cda	298	8	s	S	YT		X
Cda	299	22	s	T-S	YT		
Cda	300	7	s	S	YT		X
Cda	301	22	s	T	YT		
Cda	302	10	ctpp	S	UB		X
Hayden	303	45	s	H	LS		
Cda	304	17	s	S	YT		X
Cda	305	19	ctpp	S	UB		X
Hayden	306	11	ctwl	T	YT		
Cda	308	52	ctwl	H	LS		
Hayden	309	29	s	S	YT		X
Hayden	310	47	s	S	YT		X
Chain	311	7	s	T-S	LS		X
Chain	312	19	r	S-H	UB		X

Table D-3. (Alternative D continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Chain	313	68	s	H	LS		
Chain	314	59	s	H	LS-YT		
Hayden	315	43	ctwl	S	YT		
Hayden	316	18	r	H	UB		
Hayden	317	22	s	T-S	YT		X
Cda	318	12	s	T-S	LS		X
Chain	319	37	s	S	LS		
Hayden	320	10	s	S	YT		
Hayden	321	8	s	H	LS		
Hayden	322	53	r	S	UB	X	
Hayden	323	4	s	S	YT		X
Hayden	324	6	r	S	UB		X

Table D-4. Alternative E - Unit Information, Coeur d'Alene River Ranger District

Analysis Area Name	*Unit #*	*Acres:*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Hayden	2	11	S	S	YT		
Hayden	3	42	S	S-H	YT		X
Hayden	4	19	S	H	YT		
Hayden	5	21	S	S	YT		X
Hayden	6	78	S	S-H-T	YT		X
Hayden	7	29	S	S-H	YT		X
Hayden	8	19	S	S	YT		
Hayden	9	65	S	T-S	YT		
Hayden	10	10	S	H	YT		
Hayden	11	17	S	H	YT		
Hayden	12	20	S	S	YT		X
Hayden	13	98	S	H	YT		
Hayden	14	83	S	H	YT		
Hayden	15	5	S	H	YT		
Hayden	16	13	S	H	YT		
Hayden	17	9	S	H	YT		
Hayden	18	15	S	S	UB		
Hayden	19	258	S	T-H	YT		
Hayden	20	21	S	H	YT		
Hayden	21	22	S	S	UB		
Hayden	22	98	S	T-S-H	YT		X
Hayden	23	21	S	S	YT		
Hayden	24	5	S	C	YT		X
Hayden	25	44	S	H	YT		
Hayden	26	30	S	T-S	UB		
Hayden	27	18	S	H	YT		
Hayden	28	15	S	H	YT		
Hayden	29	22	S	H	YT		
Hayden	31	288	S	T-S-H	YT		
Hayden	32	13	S	H	YT		
CdA	34	423	S	H-S	YT		
Hayden	35	17	S	H	YT		
Hayden	36	14	S	S	YT		X
Hayden	37	48	S	H	YT		
Hayden	38	493	S	S-H	YT		
Hayden	39	23	S	H	YT		
Hayden	40	45	S	H	YT		
Hayden	41	34	S	S	YT		X
Hayden	42	13	S	H	YT		
Hayden	43	13	S	H	YT		
Hayden	44	11	S	H	YT		
Hayden	45	39	S	H	YT		
CdA	46	19	S	T-S	YT		X
CdA	47	16	S	S	YT		
CdA	48	17	S	H	YT		
CdA	50	92	S	H	YT		
CdA	51	18	S	S	YT		X
CdA	52	162	S	T-H	YT		
CdA	53	45	S	H	YT		
CdA	54	22	S	T-S	YT		X

Table D-4. (Alternative E continued)

Analysis Area Name	*Unit #*	*Acres:*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
CdA	55	55	S	H	YT		
CdA	56	258	S	H	YT		
CdA	57	325	S	H	YT		
Steamboat	62	92	S	S-T-H	YT		X
CdA	63	15	S	H	YT		
Eagle1	64	84	S	S-H	YT		
CdA	65	397	S	H	YT		
CdA	66	47	S	H	YT		
CdA	67	15	S	H	YT		
CdA	68	81	S	T-H	YT		
CdA	69	62	S	S-H	YT		X
CdA	70	14	S	S	YT		X
CdA	71	17	S	S	YT		X
Steamboat	72	4	S	H	YT		
Steamboat	73	2	S	S	YT		X
CdA	74	18	S	S	YT		X
CdA	75	26	S	S	YT		X
CdA	76	32	S	H	YT		
CdA	77	24	S	H	YT		
Hart	79	20	S	S	UB		X
Hart	80	22	S	S	YT		X
Hart	81	13	S	S	YT		X
Hart	82	41	S	S	YT		X
CdA	83	9	S	S	YT		
Hart	84	17	S	S	UB		X
CdA	85	31	S	H	YT		
Hart	86	7	S	S	YT		X
CdA	87	24	S	H	YT		
CdA	88	98	S	H	YT		
CdA	90	17	S	H	YT		
CdA	91	52	S	S	YT		X
CdA	92	70	S	T-S	YT		X
CdA	93	15	S	T	YT		
CdA	94	85	S	T-S	YT		
CdA	95	16	S	T	YT		
CdA	96	38	S	T	YT		
Beaver	97	78	S	H	YT		
CdA	98	102	S	T-S	YT		
Bumblebee	99	19	S	S	UB		X
Bumblebee	100	64	S	S	YT		
Beaver	101	50	S	T-S	YT		X
Beaver	102	10	S	S	UB		
Beaver	103	24	S	S	YT		X
Beaver	105	20	S	S	YT		
Beaver	106	5	S	T-S	UB		
Beaver	107	50	S	T-S	YT		X
Beaver	110	53	S	T-H	YT		X
Beaver	111	4	S	T-S	YT		
Beaver	113	15	S	T-S	YT		X

Table D-4. (Alternative E continued)

Analysis Area Name	*Unit #*	*Acres:*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Beaver	114	18	S	H	YT		
Beaver	115	10	S	H	YT		
Beaver	116	7	S	S	UB		
Beaver	117	16	S	T-S	UB		
Cda	119	25	S	H	YT		
Cda	120	15	S	S-H	YT		
Beaver	121	26	S	H	YT		
Beaver	123	11	S	H	YT		
Beaver	124	65	S	H	YT		
Beaver	126	41	S	H	YT		
Beaver	127	12	S	H	YT		
Beaver	129	10	S	H	YT		
Beaver	130	22	S	S	UB		X
Beaver	131	7	S	S	UB		X
Cda	133	38	S	H	YT		
Cda	138	61	S	H	YT		
Chain	139	132	S	T-S-H	YT		
Chain	140	85	S	H	YT		
Chain	141	29	S	H	YT		
Cda	142	9	S	S-H	YT		X
Cda	143	96	S	H-S	YT		
Cda	145	84	S	S-H	YT		
Cda	146	71	S	H	YT		
Cda	147	69	S	H	YT		
Cda	149	25	S	H	YT		
Chain	151	56	S	S	YT		
Chain	152	205	S	T-S-H	YT		
Cda	153	117	S	H	YT		
Chain	154	232	S	S-H	YT		
Cda	155	208	S	T-H	YT		X
Cda	156	50	S	H	YT		
Cda	157	80	S	T-S	YT		X
Chain	158	231	S	T-S-H	YT		
Chain	159	33	S	T-S-H	UB		
Chain	160	236	S	S-H	YT		X
Chain	161	161	S	S-H	YT		
Cda	162	77	S	T-S-H	YT		
Cda	163	52	S	H	YT		
Chain	164	49	S	H	YT		
Chain	165	21	S	S	UB		
Chain	166	118	S	S-H	YT		
Chain	167	21	S	S	YT		X
Chain	168	24	S	H	YT		
Hayden	170	69	S	T-H	YT		
Hayden	171	48	S	S-H	YT		
Hayden	172	44	S	T-S	YT		
Hayden	173	16	S	T-H	YT		
Hayden	174	12	S	T	YT		
Cda	176	34	S	S-H	YT		
Chain	177	28	S	H	YT		

Table D-4. (Alternative E continued)

Analysis Area Name	*Unit #*	*Acres:*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	178	80	S	H	YT		
Cda	179	38	S	S-H	YT		
Cda	181	150	S	T-S-H	YT		
Cda	182	33	S	S	YT		X
Chain	184	13	S	C	YT		X
Chain	185	269	S	S-T	YT		X
Chain	186	61	S	T-S	YT		X
Hayden	187	13	S	S	UB		
Hayden	188	17	S	H	YT		
Hayden	189	20	S	H	UB		
Hayden	190	24	S	H	YT		
Hayden	191	20	S	S	YT		
Hayden	192	9	S	H	YT		X
Hayden	193	16	S	T-S	UB		
Hayden	196	22	S	S	YT		X
Hayden	198	8	S	S	YT		
Hayden	199	8	S	S	YT		X
Hayden	200	19	S	H	YT		
Cda	202	19	S	S	YT		
Cda	203	20	S	T-S	YT		X
Cda	204	80	S	H	YT		
Bumblebee	205	14	S	T	YT		
Bumblebee	206	9	S	S	YT		
Cda	207	19	S	H	YT		
Cda	208	8	S	S	YT		
Cda	209	7	S	S	YT		
Cda	210	59	S	H	YT		
Cda	211	20	S	H	YT		
Beaver	212	29	S	T-S	YT		X
Beaver	213	6	S	H	YT		
Hayden	226	13	S	H	YT		
Cda	244	8	S	S	YT		
Cda	246	10	S	T-S	YT		X
Cda	247	11	S	S	YT		X
Chain	311	6	S	T-S	YT		X
Chain	312	20	S	S-H	UB		X
Chain	313	68	S	H	YT		
Chain	314	59	S	H	YT		
Hayden	317	22	S	T-S	YT		X
Cda	318	13	S	T-S	YT		X
Hayden	321	9	S	H	YT		
Hayden	322	54	S	S	UB	X	
Hayden	323	4	S	S	YT		X
Hayden	324	6	S	S	UB		X
Hayden	325	9	S	H	YT		

Table D-5. Alternative F - Unit Information, Coeur d'Alene River Ranger District

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Hayden	2	11	s	H	YT		
Hayden	3	42	s	S-H	UB		X
Hayden	4	19	r	H	UB		X
Hayden	5	21	s	S	YT		X
Hayden	6	78	s	S-H-T	YT		X
Hayden	7	29	s	S-H	UB		X
Hayden	8	19	s	S	YT		
Hayden	9	65	s	H	UB		X
Hayden	10	10	s	H	UB		X
Hayden	11	17	s	H	UB		X
Hayden	12	20	s	S	UB		X
Hayden	13	98	s	H	YT		
Hayden	14	83	s	H	YT		
Hayden	15	5	s	H	YT		
Hayden	16	13	r	H	UB		X
Hayden	17	9	s	H	UB		X
Hayden	18	15	r	S	UB		
Hayden	19	258	s	T-H	YT		
Hayden	20	21	s	H	UB		
Hayden	21	22	r	S	UB		
Hayden	22	98	s	T-S-H	GP		X
Hayden	23	21	s	S	YT		
Hayden	24	5	s	C	HP		X
Hayden	25	44	s	H	UB		X
Hayden	26	30	r	T-S	GP		
Hayden	27	18	s	H	YT		
Hayden	28	15	s	H	YT		
Hayden	29	22	s	H	YT		
Hayden	31	288	s	T-S-H	UB		
Hayden	32	13	s	H	UB		X
Cda	34	423	s	H-S	YT		
Hayden	35	17	s	H	UB		X
Hayden	36	14	r	S	UB		X
Hayden	37	48	s	H	YT		
Hayden	38	477	s	S-H	YT		
Hayden	39	23	s	H	UB		
Hayden	40	45	s	H	UB		X
Cda	41	34	s	S	UB		X
Hayden	42	13	s	H	UB		X
Hayden	43	13	s	H	UB		X
Hayden	44	11	s	H	UB		X
Hayden	45	39	s	H	UB		X
Cda	46	19	s	T-S	UB		X
Cda	47	16	s	S	UB		X
Cda	48	17	s	H	UB		X
Cda	50	92	s	H	UB		X
Cda	51	18	s	S	UB		X
Cda	52	162	s	H	UB		X
Cda	53	45	s	H	UB		X
Cda	54	22	r	T-S	UB		X

Table D-5. (Alternative F continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Cda	55	55	s	H	UB		X
Cda	56	258	s	H	UB		X
Cda	57	325	s	H	UB		X
Cda	63	15	s	H	UB		X
Hart	64	84	s	S-H	UB		X
Cda	65	392	s	H	UB		X
Cda	66	47	s	H	UB		X
Cda	67	15	s	H	UB		
Cda	68	81	s	T-H	UB		
Cda	69	62	s	S	UB		X
Cda	70	14	s	S	UB		X
Cda	71	17	s	S	UB		X
Cda	74	18	s	S	YT		X
Cda	75	26	s	S	UB		X
Cda	76	32	s	H	UB		
Cda	77	24	s	H	UB		X
Cda	83	9	s	S	UB		X
Cda	85	31	s	H	UB		X
Cda	87	24	s	H	UB		X
Cda	88	98	s	H	UB		X
Cda	90	17	s	H	UB		X
Cda	91	52	s	S	UB		X
Cda	92	70	s	T-S	YT		X
Cda	93	15	s	T	YT		
Cda	94	85	s	T-S	UB		
Cda	95	16	s	T	UB		
Cda	96	38	s	S	UB		
Beaver	97	78	s	H	UB		X
Cda	98	101	s	T-S	UB		
Beaver	101	50	s	T-S	UB		X
Beaver	102	11	r	S	UB		
Beaver	103	24	s	S	UB		X
Beaver	105	20	s	S	UB		
Beaver	106	5	r	T-S	UB		
Beaver	107	50	s	T-S	UB		X
Beaver	110	53	s	T-H	UB		X
Beaver	111	4	r	T-S	UB		
Beaver	113	15	r	T-S	UB		X
Beaver	114	18	s	H	UB		X
Beaver	115	10	r	H	UB		
Beaver	116	7	r	S	UB		
Beaver	117	16	r	T-S	UB		
Beaver	121	26	r	H	UB		X
Beaver	123	11	s	H	UB		X
Beaver	124	65	s	H	UB		X
Beaver	126	41	s	H	YT		
Beaver	127	12	r	H	UB		X

Table D-5. (Alternative F continued)

Analysis Area Name	Unit #	Acres	Harvest Prescription	Logging System	Fuel Treatment	Over 40 Acres	Sensitive Plant Surveys
Beaver	129	10	r	H	UB		X
Beaver	130	22	r	S	UB		X
Beaver	131	7	r	S	UB		X
Chain	152	206	s	T-S-H	UB		X
Chain	154	232	s	S-H	UB		
Chain	158	231	s	H	YT		
Chain	159	33	r	T-S-H	UB		
Chain	160	236	s	S-H	YT		X
Chain	161	161	s	S-H	UB		X
Cda	162	77	s	T-S	UB		X
Cda	163	52	r	S-H	UB	X	X
Chain	164	49	r	H	UB	X	X
Chain	165	21	r	S	UB		
Chain	166	118	s	S-H	UB		X
Chain	167	21	s	S	UB		X
Chain	168	24	r	H	UB		X
Hayden	170	68	s	H	UB		
Hayden	171	48	r	S-H	UB	X	
Hayden	172	44	r	T-S	UB	X	
Hayden	173	16	s	H	YT		
Hayden	174	12	s	S	YT		
Cda	176	34	s	S-H	UB		X
Chain	177	28	r	H	UB		X
Cda	178	80	s	H	UB		X
Cda	179	38	s	S-H	UB		X
Cda	181	151	s	T-S-H	YT		
Cda	182	33	s	S	UB		X
Hayden	187	13	r	S	UB		
Hayden	188	17	r	H	UB		
Hayden	189	20	r	H	UB		
Hayden	190	24	s	H	UB		
Hayden	191	20	r	S	UB		
Hayden	192	9	s	S	UB		X
Hayden	193	16	r	S	UB		
Hayden	196	22	r	S	UB		X
Hayden	198	8	r	S	UB		
Hayden	199	8	r	S	UB		X
Hayden	200	19	s	H	UB		
Cda	202	19	s	S	UB		
Cda	203	20	s	T-S	UB		X
Cda	204	80	s	H	UB		X
Beaver	212	29	s	T-S	UB		X
Beaver	213	6	s	H	UB		X
Hayden	226	13	s	H	YT		
Cda	244	8	s	S	UB		
Cda	246	10	s	T-S	UB		X
Cda	247	11	s	S	UB		X

Table D-5. (Alternative F continued)

Analysis Area Name	*Unit #*	*Acres*	*Harvest Prescription*	*Logging System*	*Fuel Treatment*	*Over 40 Acres*	*Sensitive Plant Surveys*
Chain	311	6	s	T-S	YT		X
Hayden	317	22	s	T-S	UB		X
Cda	318	13	s	T-S	YT		X
Hayden	321	9	s	H	YT		
Hayden	322	54	r	S	GP	X	
Hayden	323	4	s	S	YT		X
Hayden	324	6	r	S	GP		X
Hayden	325	9	s	H	YT		

Table D-6. Unit Information, Priest Lake Ranger District.

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
Bismark Mtn.	bn01	34	ST	ST	ST	ST	ST	UB	UB	UB	UB	UB		S	H	S	S	S	X	X
Bismark Mtn.	bn01a	13			ST		ST			LS		LS				S		S	X	X
Bismark Mtn.	bn02	11	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
Bismark Mtn.	bn03	29	SA	SA	SA	SA	SA	LS-YT	LS-YT	LS-YT	LS-YT	LS-YT		S-H	S-H	S-H	S-H	S-H		
Bismark Mtn.	bn05	32	SW	SW	SA	SA	SA	UB	UB	LS	LS	LS		H	H	H	H	H		X
Bismark Mtn.	bn06	56	SW	SW	SW	SA	SW	UB	UB	UB	LS	UB		H	H	H	H	H	X	X
Bismark Mtn.	bn07	121	GS	GS	GS	SA	GS	UB	UB	UB	LS	UB		H	H	H	H	H		X
Bismark Mtn.	bn08	16	SA	SA	SA	SA	SA	GP	GP	GP	GP	GP		T	T	T	T	T		X
Bismark Mtn.	bn09	33	SA	SA	SA	SA	SA	GP	GP	GP	GP	GP		T	T	T	T	T		X
Bismark Mtn.	bn09a	55			SA		SA			YT-LS		YT-LS				H-S		H-S		
Bismark Mtn.	bn10	22	ST	ST	ST	SW	ST	UB-GP	UB	UB	GP-UB	UB		T-H	T-H	T-H	T-H	T-H	X	X
Bismark Mtn.	bn11	34	ST	ST	ST	ST	ST	UB	UB	UB	UB	UB		H	H	H	H	H	X	X
Bismark Mtn.	bn12	27	SA	SA	SA	SA	SA	YT-LS	YT-LS	YT-LS	YT-LS	YT-LS		H	H	H	H	H		
Bismark Mtn.	bn13	59	SA	SA	SA	SA	SA	LS-GP	LS-GP	LS-GP	LS-GP	LS-GP		T	T	T	T	T		X
Bismark Mtn.	bn14	10	ST	ST	ST	ST	ST	UB	UB	UB	UB	UB		S	H	S	S	S		X
Bismark Mtn.	bn14a	7			SA		SA			LS-GP		LS-GP				T		T		X
Bismark Mtn.	bn15	2	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	H	T	T	T		X
Bismark Mtn.	bn16	34	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		H-S	H-S	H-S	H-S	H-S		X
Bismark Mtn.	bn16a	20			GS		GS			LS		LS				H		H		
Bismark Mtn.	bn17	12	SA	SA	SA	SA	SA	LS-GP	LS-GP	LS-GP	LS-GP	LS-GP		T	T	T	T	T		X
Bismark Mtn.	bn19	61	SW	SW	SW	SA		UB-GP	GP-UB	UB-GP	GP			T	T	T	T			X
Bismark Mtn.	bn19a	91			SA					LS						H			X	
Bismark Mtn.	bn20a	185			SA					LS						H				
Bismark Mtn.	bn21	4	SW	SW	SW	SW		LS	LS	LS	LS			H	H	H	H			
Bismark Mtn.	bs01	45	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		SH	SH	SH	SH	SH		X
Bismark Mtn.	bs02	20	ST	ST	ST	ST	ST	UB	UB	UB	UB	UB		S	S	S	S	S	X	X
Bismark Mtn.	bs03	26	SW	SW	SW	SA	SW	UB	UB	UB	LS	UB		T	T	T	T	T		X
Bismark Mtn.	bs05	42	ST	ST	ST	ST		UB	UB	UB	UB			H	H	H	H			
Bismark Mtn.	bs05a	140			SA					LS						H			X	
Bismark Mtn.	bs05b	221			SA					LS						H				
Bismark Mtn.	bs06	3	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
Bismark Mtn.	bs07	3	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	f01	15	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	f02	35	SA	SA	SA	SA		LS	LS	LS	LS			T-S	T-S	T-S	T-S			X
L.W.Branch	f02a	40			SW					UB						H			X	X
U.W.Branch	f02b	3			SA					LS						S				X
U.W.Branch	f03	36	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		H	H	H	H	H		X

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
U.W.Branch	f03a	30			SA		SA			LS		LS				S		S		X
L.W.Branch	f06	54	SW	SW	SW	SW		UB	UB	UB	UB			ST	H-T	T-S	S-T			X
L.W.Branch	f06a	13			GS					UB						H			X	X
L.W.Branch	f06b	7			GS					UB						S-T				X
L.W.Branch	f07	22	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	f07a	14			SA					LS						H				
L.W.Branch	f07b	18			SA					UB						H				X
L.W.Branch	f08	3	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	f08a	24			SA					LS						S				X
L.W.Branch	f09	2	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	f09a	38			SA					LS						H				
L.W.Branch	f10	74	IC	IC	IC		IC	UB	UB	UB		UB	UB	H	H	H		H		X
L.W.Branch	f12	4	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		X
L.W.Branch	f12a	4			SA		SA			LS		LS				S		S		X
L.W.Branch	f13	6	IC	IC	IC		IC	UB	UB	UB		UB		S	S	S		S		X
L.W.Branch	f13a	10			IC		IC			UB		UB				S		S		X
L.W.Branch	f14	1	SA	SA	SA	SA		LS	LS	LS	LS			T	T	T	T			X
L.W.Branch	f14a	12			SA					LS						T				X
L.W.Branch	f16a	27			SA		SA			LS		LS				S		S		X
L.W.Branch	f17a	4			SA		SA			LS		LS				H		H		
L.W.Branch	f18	23	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	H	S	S	S		X
L.W.Branch	f18a	12			IC					LS						T				X
L.W.Branch	f19	9	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		X
L.W.Branch	f19a	20			SA		SA			LS		LS				T		T		X
L.W.Branch	f20	4	SA	SA	SA	SA	SA	GP	GP	GP	GP	GP		T	T	T	T	T		X
L.W.Branch	f22	5	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		
L.W.Branch	f23	7	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		H	H	H	H	H		
L.W.Branch	f24	7	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		H	H	H	H	H		
L.W.Branch	f24a	3			SA		SA			LS		LS				H		H		
L.W.Branch	f24b	6			SA		SA			LS		LS				H		H		
L.W.Branch	f25	27	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	H	S	S	S		X
L.W.Branch	f25a	17			SA		SA			LS		LS				S		S		X
L.W.Branch	f25b	8			SA		SA			LS		LS				S		S		X
L.W.Branch	f26	2	SW	SW	SW	SW	SW	GP	GP	GP	GP	GP		T	T	T	T	T		X
L.W.Branch	f28	1	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		
L.W.Branch	f28a	10			SW		SW			UB		UB				S		S		
L.W.Branch	f29	1	SA	SA	SA	SA		LS	LS	LS	LS			T	T	T	T			X

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
L.W.Branch	f29a	30			SW					UB						T				X
L.W.Branch	f30	0	SA	SW	SA	SA		LS	LS	LS	LS			S	S	S	S			X
L.W.Branch	f30a	18			SW					UB						H				X
L.W.Branch	m01	6	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		X
L.W.Branch	m02	3	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	m03	19	IC	IC	IC	SA	IC	UB	UB	UB	LS	UB		T-S	H	S-T	S	S-T		X
L.W.Branch	m04	21	IC	IC	IC		IC	UB	UB	UB		UB		T	T	T		T		X
L.W.Branch	m05	29	IC	IC	IC	SA	IC	UB	UB	UB	UB	UB		S	H	S	S	S		X
L.W.Branch	m06	49	SW	SW	SW	SA	SW	UB	UB	UB	UB	UB		T	H	T	T	T	X	X
L.W.Branch	m07	122	IC	IC	IC	SA	IC	UB	UB	UB	UB	UB	UB	S	H	S	S	S		X
L.W.Branch	m08	59	IC	IC	IC	SA	IC	UB	UB	UB	GP	UB		H	H	H	H	H		X
L.W.Branch	m09	20	SW	SW	SW	SA	SW	UB	UB	UB	LS	UB		S	H	S	S	S		X
L.W.Branch	m10	38	SW	SW	SW	SA	SW	UB	UB	UB	GP	UB		T-S	H	T-S	T-S	T-S		X
L.W.Branch	m11	8	SW	SW	SW	SA	SW	UB	UB	UB	LS	UB		S	S	S	S	S		X
L.W.Branch	m12	13	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		T	T	T	T	T	X	X
L.W.Branch	m13	29	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	H	S	S	S	X	X
L.W.Branch	m14	8	SW	SW	SW	SW	SW	GP	GP	GP	GP	GP		T	T	T	T	T		X
L.W.Branch	m15	16	SW	SW	SW	GS	SW	GP	GP	GP	GP	GP		T	T	T	T	T		X
L.W.Branch	m16	16	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	m17	17	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	H	S	S	S		X
L.W.Branch	m18	5	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	m19	10	SW	SW	SW	SW	SW	GP	GP	GP	GP	GP		T	T	T	T	T	X	X
L.W.Branch	m20	23	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	m21	9	SA	SA	SA	SW	SA	GP	GP	GP	GP	GP		T	T	T	T	T		X
L.W.Branch	m22	3	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	m23	10	SA	SA	SA	SA	SA	LS	LS	LS	GP-UB	LS		T	T	T	T	T		X
L.W.Branch	m24	36	IC	IC	IC		IC	UB	UB	UB		UB		H	H	H		H		X
L.W.Branch	m25	38	SW	SW	SW	SW	SW	GP-UB	GP	GP-UB	GP	GP-UB		T	T	T	T	T	X	X
U.W.Branch	m26	25	GS	GS	GS	SA	GS	GP	GP	GP	GP	GP		T	T	T	T	T		X
U.W.Branch	m27	11	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
U.W.Branch	m28	12	GS	GS	GS	SA	GS	GP	GP	GP	GP	GP		T	T	T	T	T		X
L.W.Branch	m29	61	GS	GS	GS	SA	GS	GP	LS	LS	LS	LS		S	S	S	S	S		X
L.W.Branch	m30	7	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		X
L.W.Branch	m31	29	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		X
L.W.Branch	m32	5	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	m33	22	IC	IC	IC		IC	UB	UB	UB		UB	UB	S	S	S		S		
L.W.Branch	o01	13	SW	SW	SW	SW		UB	UB	UB	YT			ST	S-T	S-T	S-T			X

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
L.W.Branch	o01a	7			SA					LS						S				X
L.W.Branch	o04	2	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		X
L.W.Branch	o04a	8			SA		SA			LS		LS				S		S		X
L.W.Branch	o05	3	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		X
L.W.Branch	o05a	22			SA		SA			LS		LS				S		S		X
L.W.Branch	o06	1	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	o06a	3			SA					LS						H				
L.W.Branch	o07	2	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	o08	2	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
L.W.Branch	o08a	20			SA					LS						S				X
L.W.Branch	o08b	19			SA					LS						S				X
L.W.Branch	o09	2	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
L.W.Branch	o09a	19			SA					LS						S				X
L.W.Branch	o10	1	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			
L.W.Branch	o10a	13			SA					LS						H				
L.W.Branch	o12	19	SW	SW	SW	SA		UB	UB	UB	YT			S	S	S	S			X
L.W.Branch	o12a	9			SA					LS						S				X
L.W.Branch	o14	13	SW	SW	SW	SA		UB	UB	UB	YT			H	H	H	H			
L.W.Branch	o14a	4			SA					LS						H				
L.W.Branch	o15	5	SW	SW	SW	SW		UB	UB	GP	YT			T	T	T	T			X
L.W.Branch	o15a	16			SA					LS						T-S				X
L.W.Branch	o16	4	ST	ST	ST	ST		UB	UB	UB	UB			S	S	S	S			X
L.W.Branch	o16a	19			SA					LS						H				
L.W.Branch	o18	33	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			X
L.W.Branch	o19	9	SW	SW	SW	SW		UB	UB	UB	YT			S	S	S	S			X
L.W.Branch	o20	31	GS	GS	GS	GS		YT	YT	YT	YT			H	H	H	H			
L.W.Branch	o21	4	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	o22	4	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	o22a	8			SA					LS						H				
L.W.Branch	o25	3	SA	SA	SA	SA		GP	GP	GP	GP			T	T	T	T			X
L.W.Branch	o26	11	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
L.W.Branch	o27	30	SW	SW	SW	SW		UB	UB	UB	UB			S	SH	S	S		X	X
L.W.Branch	o28	16	GS	GS	GS	GS		YT	YT	YT	YT			S	S	S	S			X
L.W.Branch	o29	7	SW	SW	SW	SW		UB	UB	UB	YT			S	S	S	S		X	
L.W.Branch	o30	13	SW	SW	SW	SW		UB	UB	UB	UB			S	S	S	S		X	
L.W.Branch	o31	7	SW	SW	SW	SW		UB	UB	UB	YT			S	S	S	S		X	
L.W.Branch	o32	7	SW	SW	SW	SW		UB	UB	UB	UB			S	S	S	S		X	

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
L.W.Branch	o33	29	SW	SW	SW	SA		UB	UB	UB	GP			H	H	H	H		X	
L.W.Branch	o34	16	SA	SA	SA	SA		LS-YT	LS-YT	LS-YT	LS-YT			H	H	H	H			
L.W.Branch	o35	4	SA	SA	SA	SA		LS-YT	LS-YT	LS-YT	LS-YT			H	H	H	H			
L.W.Branch	o36	76	SW	SW	SW	SW		UB	UB	UB	YT			H	H	H	H		X	
L.W.Branch	o37	8	SW	SW	SW	SW		UB	UB	UB	UB			S	S	S	S			
L.W.Branch	o38	4	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			
L.W.Branch	o39	14	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			
L.W.Branch	o40	3	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
L.W.Branch	o41	1	SA	SA	SA	SA		LS	LS	LS	LS			T	T	T	T			X
L.W.Branch	o42	5	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			
L.W.Branch	o46	2	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
U.W.Branch	p01	26	ST	ST	ST	SA		UB	UB	UB	LS			S	H	S	S			X
U.W.Branch	p02	30	ST	ST	ST	SW		UB	UB	UB	LS			H	H	H	H			X
U.W.Branch	p02a	31			SA					LS						S				X
U.W.Branch	p03	7	ST	ST	ST	SW		UB	UB	UB	LS			H	H	H	H			X
U.W.Branch	p04	41	ST	ST	ST	SW		UB	UB	UB	UB			S	H	S	S		X	X
U.W.Branch	p05	42	GS	GS	GS	SA		LS-GP	LS	LS-GP	LS			S	H	S	S			X
U.W.Branch	p06	26	ST	ST	ST	SW		UB	UB	UB	UB			S	H	S	S			X
U.W.Branch	p06a	51			ST					UB						S			X	X
U.W.Branch	p07	18	SA	SA	SA	SA		LS	LS	LS	LS			S	H	S	S			X
U.W.Branch	p08	8	SW	SW	SW	SW		LS	LS	LS	LS			T	T	T	T			X
U.W.Branch	p10	11	SW	SW	SW	SA		UB	UB	UB	LS			H	H	H	H			X
U.W.Branch	p11	23	SW	SW	SW	SA		UB	UB	UB	UB			H	H	H	H			X
U.W.Branch	p11a	22			SA					UB						H-S				X
U.W.Branch	p12	5	ST	ST	ST	SW		GP-LS	GP	GP	GP			T	T	T	T		X	X
U.W.Branch	p12a	25			ST					UB						T-S			X	X
U.W.Branch	p13	16	SA	SA	SA	SA		LS	LS	LS	LS			T	T	T	T			X
U.W.Branch	p14	20	ST	ST	ST	SW		UB	UB	UB	UB			S	H	S	S			X
U.W.Branch	p14a	34			ST					UB						S				X
U.W.Branch	p15	20	ST	ST	ST	SW		UB	UB	UB	UB			T-S	H-S	T-S	T-S			X
U.W.Branch	p15a	16			ST					UB						S				X
U.W.Branch	p16	11	ST	ST	ST	SW		UB	UB	UB	UB			H	H	H	H			X
U.W.Branch	p16a	10			ST					UB						H				X
U.W.Branch	p17	23	ST	ST	ST	SA		UB	UB	UB	LS			S	S	S	S		X	X
U.W.Branch	p18	5	SA	SA	SA	SA		YT	YT	YT	YT			T	T	T	T			X
U.W.Branch	p18a	7			SA					LS						S				X
U.W.Branch	p19	8	SA	SA	SA	SA		YT	YT	YT	YT			S	S	S	S			X

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
U.W.Branch	p20	60	SW	SW	SW	SA		UB	UB	UB	LS			S	S	S	S		X	X
U.W.Branch	p20a	22			SA					LS-YT						S				X
U.W.Branch	p21	17	SA	SA	SA	SW		LS	LS	LS	LS			S	S	S	S			X
U.W.Branch	p22	29	SA	SA	SA	SA		LS	LS	LS	LS			S	H	S	S			X
U.W.Branch	p25	23	ST	ST	ST	SA		UB	UB	UB	LS			S	S	S	S			X
U.W.Branch	p25a	10			SA					LS						S				X
U.W.Branch	p25b	58			SW					UB						S			X	X
U.W.Branch	p29	5	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
U.W.Branch	p30	9	SW	SW	SW	SW		UB	UB	UB	UB			S	S	S	S			X
U.W.Branch	p31	9	SA	SA	SA	SA		LS	LS	LS	LS			T	H	T	T			X
U.W.Branch	p32	5	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
Quartz	q01	58	IC	IC	IC	SA	IC	UB	UB	UB	UB	UB	UB	S	H	S	S	S		X
Quartz	q02	49	IC	IC	IC	SA	IC	UB	UB	UB	UB	UB		S	H	S	S	S		X
Quartz	q02a	59			SA		SA			LS		LS				H		H		
Quartz	q03	192	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S-T	S-T	S-T	S-T	S-T		X
Quartz	q03c	27			SA		SA			LS		LS				S		S		X
Quartz	q04	65	SW	SW	SW	SA	SW	UB	UB	UB	UB	UB		H	H	H	H	H	X	X
L.W.Branch	q05	39	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		SH	SH	SH	SH	SH		X
L.W.Branch	q06	36	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		H	H	H	H	H	X	X
Quartz	q07	37	IC	IC	IC	SA	IC	UB	UB	UB	LS	UB		H	H	H	H	H		X
L.W.Branch	q08	22	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		X
L.W.Branch	q09	31	ST	ST	ST	SW	ST	UB	UB	UB	UB	UB		H	H	H	H	H	X	X
L.W.Branch	q10	17	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		T	T	T	T	T	X	X
L.W.Branch	q11	35	ST	ST	ST	SW	ST	UB	UB	UB	UB	UB		T-H	T-H	T-H	T-H	T-H	X	X
Quartz	q12	107	SW	SW	SW	SA	SW	UB	UB	UB	UB	UB		S	H	S	S	S	X	X
Quartz	q13	60	SW	SW	SW	SA	SW	LS	LS	LS	LS	LS		S	S	S	S	S	X	X
L.W.Branch	q14	6	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		T	T	T	T	T		X
L.W.Branch	q16	89	IC	IC	IC		IC	UB	UB	UB		UB	UB	S	S	S		S		X
L.W.Branch	q17	3	IC	IC	IC	SA	IC	GP	GP	GP	GP	GP		T	T	T	T	T		X
Quartz	q18	52	ST	ST	ST	SW	ST	UB	UB	UB	UB	UB		H	H	H	H	H	X	X
Quartz	q19	13	SAIC	SAIC	SAIC	SA	SAIC	LS	LS	LS	LS	LS		S-T	S-T	S-T	S-T	S-T		X
Quartz	q19a	43			SA		SA			LS		LS				S		S		X
Quartz	q20	19	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		
Quartz	q20a	46			SA		SA			LS		LS				H		H		
L.W.Branch	q21	4	SAIC	SAIC	SAIC	SA	SAIC	LS	LS	LS	LS	LS		S	S	S	S	S		X
Quartz	q22	43	SAIC	SAIC	SAIC	SA	SAIC	LS	LS	LS	LS	LS		H	H	H	H	H		
L.W.Branch	q24	8	IC	IC	IC		IC	GP	GP	GP		GP		S	S	S		S		X

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
L.W.Branch	q25	17	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		T	T	T	T	T		X
Quartz	q26	119	SW	SW	SW	SA	SW	GP	GP	GP	LS	GP		S-T	S-T	S-T	S-T	S-T	X	X
L.W.Branch	q27	20	SW	SW	SW	SA	SW	UB	UB	UB	GP	UB		T	T	T	T	T		X
L.W.Branch	q28	20	IC	IC	IC		IC	LS	LS	LS		LS		H	H	H		H		
L.W.Branch	q35	19	IC	IC	IC	SA	IC	GP	GP	GP	GP	GP		T	T	T	T	T		
L.W.Branch	q36	21	IC	IC	IC		IC	GP	GP	GP		GP		H	H	H		H		
U.W.Branch	t01	23	SA	SA	SA	SA		GP	GP	GP	GP			T-S	T-H	T-S	T-S			X
U.W.Branch	t02	29	SW	SW	SW	SW		UB	UB	UB	UB			S	H	S	S			X
U.W.Branch	t02b	14			SW					UB						S				X
U.W.Branch	t02c	33			SW					UB						S				X
U.W.Branch	t03	25	SW	SW	SW	SW		UB	UB	UB	UB			S	S	S	S			X
U.W.Branch	t03a	49			SW					UB						S			X	X
U.W.Branch	t04	27	SW	SW	SW	SW		UB	UB	UB	GP-UB			S	H	S	S-T			X
U.W.Branch	t04a	21			SW					UB						S				X
U.W.Branch	t05	141	SW	SW	SW	SW		GP-UB	GP-UB	GP-UB	GP-UB			T-S	T-H	T-S	T-S		X	X
U.W.Branch	t06	10	SW	SW	SW	SW		UB	UB	UB	UB			S	S	S	S			X
U.W.Branch	t07	10	SA	SA	SA	SA		GP-LS	GP-LS	GP-LS	GP-LS			S	S	S	S			X
U.W.Branch	t08	81	SW	SW	SW	SW		UB	UB	UB	UB			S	H	S	S		X	X
U.W.Branch	t09	8	SW	SW	SW	SW		UB	UB	UB	UB			H	H	H	H			X
U.W.Branch	t10	74	SW	SW	SW	SW		UB	UB	UB	UB			S	H	S	S		X	X
Bismark Mtn.	t11	6	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			
Bismark Mtn.	t12	13	SW	SW	SW	SW		LS	LS	LS	LS			S	S	S	S		X	
Bismark Mtn.	t13	8	SW	SW	SW	SW		LS	LS	LS	LS			H	H	H	H			
Bismark Mtn.	t14	120	SW	SW	SW	SW		UB	UB	UB	UB			S	H	S	S		X	X
U.W.Branch	t15	27	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	H	S	S	S		X
U.W.Branch	t15a	4			SW		SW			UB		UB				H		H		X
U.W.Branch	t15b	24			IC		IC			UB		UB				S		S		X
U.W.Branch	t16	19	SW	SW	SW	SW	SW	GP	GP	GP	GP	GP		S	S	S	S	S	X	X
Bismark Mtn.	t17	29	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	SH	S	S	S	X	X
U.W.Branch	t18	41	SW	SW	SW	SW	SW	LS	LS	LS	LS	LS		S	S	S	S	S	X	
U.W.Branch	t19	5	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	H	S	S	S		
U.W.Branch	t20	5	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		
U.W.Branch	t21	9	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		
U.W.Branch	t22	4	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S		
Bismark Mtn.	t23	18	SA	SA	SA	SA	SA	GP	GP	GP	GP	GP		T	T	T	T	T		
U.W.Branch	t24	5	SW	SW	SW	SW	SW	UB	UB	UB	UB	UB		S	S	S	S	S	X	X
U.W.Branch	t25	29	SA	SA	SA	SA		LS	LS	LS	LS			S-T	S-T	S-T	S-T			X

Table D-6. Unit Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Over 40 Acres	Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F		
U.W.Branch	t26	8	IC	IC	IC		IC	UB	UB	UB		UB		H	H	H		H		
G.Watson	w01	22	SW	SW	SW	SA	SW	UB	UB	UB	GP	UB		H	H	H	H	H	X	X
G.Watson	w01a	13			SW		SW			UB		UB				H		H	X	X
G.Watson	w02	17	SW	SW	SW	SW	SW	UB	UB	UB	GP	UB		H-T	H	H-T	H	H-T	X	
G.Watson	w02a	20			SW		SW			UB		UB				H-T		H-T	X	
G.Watson	w03	63	GS	GS	GS	SA	GS	YT	YT	YT	LS	YT		H	H	H	H	H		
G.Watson	w04	116	GS	GS	GS	SA	GS	YT	YT	YT	LS	YT		H-T	H-T	H-T	H-T	H-T		
G.Watson	w05	36	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		S	S	S	S	S		X
G.Watson	w06	64	SW	SW	SW	SW		UB	UB	UB	UB			H	H	H	H		X	X
G.Watson	w07	8	SW	SW	SW	SW		UB	UB	UB	UB			T	T	T	T			X
G.Watson	w07a	34			SW					UB						T				X
G.Watson	w08	29	SW	SW	SW	SW		UB	UB	UB	UB			T-S	T-S	T-S	T-S			X
G.Watson	w09	43	SW	SW	SW	SW		GP	GP	GP	UB			H	H	H	H		X	X
G.Watson	w10	31	SW	SW	SW	SW		UB	UB	UB	UB			H	H	H	H			X
G.Watson	w11	19	SW	SW	SW	SW		UB	UB	UB	UB			H	H	H	H			X
G.Watson	w12	19	SW	SW	SW	SW		UB	UB	UB	UB			H	H	H	H			X
G.Watson	w13	23	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S			X
G.Watson	w15	60	GS	GS	GS	SA	GS	LS	LS	LS	LS	LS		H	H	H	H	H		
G.Watson	w16	42	GS	GS	GS	SA	GS	LS	LS	LS	LS	LS		H	H	H	H	H		
G.Watson	w17	9	GS	GS	GS	SA	GS	YT	YT	YT	LS	YT		H	H	H	H	H		
G.Watson	w18	1	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		H	H	H	H	H		
G.Watson	w18a	15			SA		SA			LS		LS				H		H		
G.Watson	w18b	15			SA		SA			LS		LS				H		H		
G.Watson	w18c	59			ST		ST			UB		UB				H		H	X	X
G.Watson	w18d	10			SW		SW			UB		UB				H		H		X
G.Watson	w19	6	ST	ST	ST	SA	ST	UB	UB	UB	LS	UB		H	H	H	H	H		X
G.Watson	w19a	9			ST		ST			UB		UB				H		H		X
G.Watson	w22	3	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		H	H	H	H	H		
G.Watson	w22a	55			SA		SA			LS		LS				H		H		
G.Watson	w23	39	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H			

Table D-7. Unit Information, Newport Ranger District.

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F	
Newport	1A	57			SA					UB						H			X
Newport	2	23	SA	SA	SA	SA		UB	UB	UB	UB		UB	S	S	S	S		X
Newport	3	11	SA	SA	SA	SA		UB	UB	UB	UB			S	S	S	S		X
Newport	4	13	SA	SA	SA	SA		UB	UB	UB	UB			S	S	S	S		X
Newport	5	36	TH	TH	TH	SA		LS	LS	LS	LS			H	H	H	H		
Newport	6	29	SW	SW	SW	SW		UB	UB	UB	UB		UB	S	S	S	S		X
Newport	7	157	SA	SA	SA	SA		LS	LS	LS	LS			S	S	S	S		X
Newport	8A	7			SA					LS						S			X
Newport	9A	106			SA		SA			LS		LS	UB			H		H	
Newport	10	47	SA	SA	SA	SA		UB	UB	UB	UB			S	S	S	S		X
Newport	11	23	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	S	S	S	S	S	X
Newport	12A	25			SA		SA			LS		LS	UB			S		S	X
Newport	14A	53			ST		ST			UB		UB				S		S	X
Newport	15A	30			SA					UB						T-S			X
Newport	16A	195			TH					LS			UB			H			
Newport	17A	119			SA					UB						H-S			X
Newport	19A	287			SA					UB						S			X
Newport	20A	137			SA					LS						H-S			X
Newport	21	59	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB		T	T	T	T	T	X
Newport	22	101	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS	UB	T	T	T	T	T	X
Newport	23A	111			SA		SA			UB		UB	UB			T		T	X
Newport	24A	212			SA		SA			UB		UB	UB			H-T		H-T	X
Newport	25A	303			SA		SA			LS		LS	UB			T		T	
Newport	26A	187			SA		SA			UB		UB	UB			T		T	X
Newport	26A	285			SA		SA			UB		UB	UB			T		T	X
Newport	27A	97			SA					UB						S			X
Newport	27A	10			SA					UB						S			X
Newport	28A	55			SA					UB						H			X
Newport	29	272	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H	H	H	H	H	X
Newport	30	187	SA	SA	SA	SA	SA	LS	LS	LS	LS	LS		H	H	H	H	H	
Newport	31A	95			SA		SA			LS		LS				T		T	X
Newport	32	82	TH	TH	TH	SA	TH	UB	UB	UB	UB	UB	UB	H	H	H	H	H	X
Newport	33	4	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H-S	H-S	H-S	H-S	H-S	

Table D-7. Unit Information, Newport Ranger District (continued).

Map Analysis Area Name	Unit No.	Acres	Harvest Prescription					Fuel Treatment						Logging System					Sensitive Plant Surveys
			B	C	D	E	F	B	C	D	E	F	G	B	C	D	E	F	
Newport	33	84	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H-S	H-S	H-S	H-S	H-S	
Newport	33	2	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H-S	H-S	H-S	H-S	H-S	
Newport	34A	292			SA		SA			UB		UB	UB			H		H	
Newport	35	40	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB		H	H	H	H	H	X
Newport	36A	80			SW		SW			UB		UB	UB			H		H	X
Newport	37	77	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H-T	H-T	H-T	H-T	H-T	X
Newport	38	57	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H	H	H	H	H	X
Newport	39	124	TH	TH	TH	SA	TH	LS	LS	LS	LS	LS		H-S	H-S	H-S	H-S	H-S	X
Newport	40	12	SA	SA	SA	SA		UB	UB	UB	UB			S	S	S	S		X
Newport	41A	319			SA		SA			UB		UB				H-T		H-T	X
Newport	41A	14			SA		SA			UB		UB				H-T		H-T	X
Newport	41A	5			SA		SA			UB		UB				H-T		H-T	X
Newport	42A	35			SA					UB						H-S			X
Newport	43A	128			SA		SA			UB		UB	UB			T		T	X
Newport	44	20	SA	SA	SA	SA		LS	LS	LS	LS			H	H	H	H		
Newport	45	15	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H-T	H-T	H-T	H-T	H-T	X
Newport	46	34	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H-T	H-T	H-T	H-T	H-T	X
Newport	47	10	SA	SA	SA	SA	SA	UB	UB	UB	UB	UB	UB	H	H	H	H	H	X
Newport	48	3	SA	SA	SA	SA		UB	UB	UB	UB			S	S	S	S		X

Road Information Tables

The "Road Information" tables display the following information:

Analysis Area Name: Effects were assessed at the smaller-scale tributaries of the watersheds, as listed in the tables.

Road Number: Designated forest road number or an assigned road name.

Miles: Number of miles in the road segment.

Road Work Prescription: The proposed road work is identified, using the following codes:

Erosion Control: use of vegetation and geotextiles to control or reduce surface erosion.

Light Reconstruction: installation of rolling dips, rolling grade, relief culverts, additional gravel surfacing, armoring of culvert catch basins and outlets.

Heavy Reconstruction: design modifications and replacement of existing stream crossings, cut or fill slope stabilization (for example, buttressing, gabions, or subgrade geogrid placements), road prism re-alignment (horizontal and vertical), and removal of encroaching road fills.

Maintenance: brushing, blading and shaping of the road tread, cleaning of ditch lines and culverts, repairing drivable waterbars, and revegetation activities.

Level 1 Obliteration: removal and recontour of all stream crossings, recontour of unstable fill slopes, cutslope stabilization, ripping the road tread, installation of frequent no-maintenance cross ditches, and revegetation activities. Obliteration also includes some method of road closure, such as a guard rail barrier, gate, earthen berm, or short section of full prism recontouring.

Level 2 Obliteration: removal of all stream crossings and full recontour of the entire road prism, with revegetation as needed.

Road Relocation: road prism re-alignment or relocation of encroaching and riparian road segments. Relocation includes removal of encroaching or unstable fill from the channel floodplains, recontouring of tributary crossings, outsloping, cross drainage, and erosion control.

Primary Objective: The primary objective of the proposed road work is identified, using the following codes:

R - Restoration: Work on these roads was specifically included and designed to eliminate or reduce adverse effects to streams, fish habitat, fish migration, and/or wildlife and wildlife habitat.

A - Access: Work on these roads was specifically included to allow safe access for timber harvest and related activities. While the work is designed to limit potential effects to other resource values, the primary purpose is to provide limited access for sale activities.

Existing Access and Final Access Status: The existing road access and final road access that would occur under each alternative are displayed, using the following codes:

B - Barriered:
G - Gated:
I - Impassable:
O - Open:

***Level of "Certainty"* (by alternative):** The level of certainty that the work will occur on each road under each alternative is displayed, using the following codes:

1 - Highly Certain: Watershed or wildlife road restoration features that are not dependant on any specific timber sale or harvest unit. Forest Service is committed to completing this work for the selected alternative independent of whether a sale sells or not.

2 - Quite Certain: Road work, either for watershed/wildlife restoration or for timber sale access, required through a timber sale contract. If the timber sale sells, the work is contractually guaranteed to be accomplished. Typically items like road reconstruction, road relocation, etc. must be completed prior to the purchaser hauling timber on that road. Items like road obliteration the purchaser either completes after he or she uses the road or else pays a deposit for the Forest Service to complete the work after fuel reduction burning is complete.

Also included are a number of road segments and spurs which extend beyond road segments being used and obliterated by the sale purchaser. These cannot be included in the contract. These road restoration segments would be completed by the Forest Service prior to or concurrently with the sale contract related closure (before access is lost to complete the work).

3 - Less Certain: These additional watershed and wildlife road restoration opportunities under Alternatives D and F are the same as the Code 2 roads above except that the potential harvest units may not currently have beetle activity yet. Under these alternatives, these units would only be harvested <u>if</u> the beetle activity increased or spread to these stands. Therefore, there is less certainty that this work would be accomplished under these alternatives. If the infestation does spread <u>and</u> the unit harvested, road restoration work associated with each additional under the two alternatives would be accomplished through the timber sale contract, as described for the Code 2 roads mentioned above.

4 - Uncertain: These are additional watershed road restoration features which are not considered mandatory to project implementation nor guaranteed to be implemented, but could be accomplished if funding becomes available. The most likely source of funding for this work would come from timber sale receipts which can be reinvested in the area if the sale is bid up above minimum levels. As there is no certainty that the sales would be bid up and there are other restrictions on the use of these funds, there is no guarantee or certainty that this work would be done under any of the alternatives. Therefore, the benefits and effects of completing this work was not relied upon as mitigation. The effects of implementing these activities were documented separately throughout the Final Environmental Impact Statement, and are not displayed on the alternative maps.

Abbreviations Used in the "Road Information" Tables

PRIMARY OBJECTIVE:

R - Restoration
A - Access

EXISTING ACCESS and FINAL ACCESS STATUS:

B - Barriered
G - Gated
I - Impassable
O - Open

LEVEL OF "CERTAINTY":

1 - Highly Certain
2 - Quite Certain
3 - Less Certain
4 - Uncertain

Tear this sheet out for handy reference

Table D-8. Road Information, Coeur d'Alene River Ranger District.

Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status (by alternative)						Level of "certainty" (by alternative)					
						B	C	D	E	F	G	B	C	D	E	F	G
Beauty	1575	2.5	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Beauty	1575C	1.4	Culvert Upgrades	R	G	G	G	G	G	G	G	2	2	2	2	X	1
Beauty	1575J	0.4	Level 1 Obliteration	R	GI	GI	GI	GI	GI	GI	I	2	2	2	2	X	1
Beauty	1597C	3.4	Heavy Reconstruction	A	I	I	I	I	I	I	I	2	2	2	2	X	X
Beauty	1597G	0.4	Heavy Reconstruction	A	I	I	I	I	I	I	I	2	2	2	2	X	X
Beauty	1597H-N	2.0	Level 2 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	X	1
Beauty	438	6.2	Culvert Upgrades - Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Beauty	438C	1.6	Level 1 Obliteration	R	GI	I	I	I	I	GI	I	2	2	2	2	X	1
Beauty	438C-N	2.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	X	1
Beauty	453	6.2	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Beauty	453G	3.4	Level 1 Obliteration	R	G	G	G	G	G	G	I	2	2	2	2	X	1
Beauty	453I	1.0	Level 1 Obliteration	R	B	B	B	B	B	B	I	2	2	2	2	X	1
Beauty	453J	1.5	Level 1 Obliteration	R	G	G	G	G	G	G	I	2	2	2	2	X	1
Beauty	453S	1.0	Level 1 Obliteration	R	GI	G	G	G	G	GI	I	2	2	2	2	X	1
Beauty	439H	0.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	X	1
Beaver	6541	3.9	Culvert Upgrades - Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Bumblebee	1521	1.7	Heavy Reconstruction	A	I	I	I	I	I	I	I	2	2	2	2	X	X
Bumblebee	323	5.4	Culvert Upgrades	R	O	O	O	O	O	O	O	2	X	2	2	X	1
Bumblebee	796	3.5	Level 2 Obliteration	R	O	O	O	O	O	O	I	X	X	X	X	X	1
Carlin	439F	1.9	Level 1 Obliteration	R	G	I	I	I	I	I	I	2	2	2	2	2	1
Cedar	359	0.1	Level 1 Obliteration	R	B	B	B	B	B	B	I	X	X	X	X	X	1
Cedar	359	3.4	Culvert Upgrades - Light Reconstruction	R	B	B	B	B	B	B	I	2	2	2	2	2	1
Cedar	413N	4.6	Culvert Upgrades - Light Reconstruction	R	B	B	B	B	B	B	B	2	2	2	2	2	1
Cedar	1575	2.5	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Cedar	3016A	2.7	Light Reconstruction	R	B	B	B	B	B	B	B	2	2	2	2	X	1
Chain Lakes	438N	5.3	Level 1 Obliteration	R	I	I	I	I	I	I	I	X	X	X	X	X	1
Chain Lakes	614N	6.0	Level 1 Obliteration	R	I	I	I	I	I	I	I	X	X	X	X	X	1
Chain Lakes	1578	5.8	Level 1 Obliteration	R	B	I	I	G	I	B	I	2	2	2	2	X	1
Chain Lakes	1578	0.2	Level 2 Obliteration	R	B	I	I	G	I	B	I	2	2	2	2	X	1
Chain Lakes	1578N-2T	0.2	Heavy Reconstruction	A	I	I	I	I	I	I	I	2	X	2	2	X	X
Chain Lakes	1578 NS	4.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	X	1
Chain Lakes	1540B	3.7	Culvert Upgrades - Light Reconstruction	R	BI	B	B	B	B	B	B	2	2	2	2	2	1
Chain Lakes	1542	8.8	Level 1 Obliteration	R	I	I	I	I	I	I	I	X	X	X	X	X	1

Table D-8. (continued)

Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status (by alternative)						Level of "certainty" (by alternative)					
						B	C	D	E	F	G	B	C	D	E	F	G
Chain Lakes	1542A-NS	0.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	X	X	X	X	X	1
Chain Lakes	1545	2.0	Light Reconstruction	R	O	B	B	B	B	B	B	2	2	2	2	2	1
Chain Lakes	539	7.5	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Coeur d'Alene	1575	2.5	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Fernan	108-PO	0.3	Level 2 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Fernan	1559UI	3.5	Build 400' of trail / Remove 1 crossing	R	B	B	B	B	B	B	I	2	2	2	2	2	1
Fernan	1562	1.5	Level 2 Obliteration	R	O	O	O	O	O	O	I	2	2	2	2	2	1
Fernan	1593-N	4.8	Level 1 Obliteration	R	G	I	I	I	I	I	I	2	2	2	2	2	1
Fernan	1593AUB	1.7	Level 1 Obliteration	R	G	I	I	G	I	I	I	2	2	X	2	2	1
Fernan	1535	1.7	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	2	2
Fernan	1593N	1.2	Culvert Upgrades	R	G	I	I	G	I	I	I	X	X	2	X	X	1
Fernan	1593-UAN	1.0	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Fernan	2337B	1.2	Level 1 Obliteration	R	B	B	B	B	B	B	I	2	2	2	2	2	1
Fernan	2339	1.8	Level 1 Obliteration	R	BI	BI	BI	BI	BI	BI	I	2	2	2	2	2	1
Fernan	2339A/Spur	4.7	Level 1 Obliteration	R	BI	BI	BI	BI	BI	BI	I	2	2	2	2	2	1
Hart	990	6.8	Level 1 Obliteration	R	B	B	B	B	B	B	I	X	X	X	X	X	1
Hart	Hopkins	0.5	Level 2 Obliteration	R	I	I	I	I	I	I	I	X	X	X	X	X	1
Hayden	1526	1.0	Road Relocation	R	G	G	G	G	G	G	I	X	X	2	X	X	1
Hayden	1526	1.0	Level 2 Obliteration	R	G	G	G	G	G	G	I	X	X	2	X	X	1
Hayden	1526UN	3.8	Level 1 Obliteration	R	BI	BI	BI	I	BI	BI	I	X	X	2	X	X	1
Hayden	1526UG	4.8	Level 2 Obliteration	R	O	O	O	I	O	O	I	X	X	2	X	X	1
Hayden	1526UC	1.3	Level 2 Obliteration	R	G	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	1526UZ	0.4	Level 1 Obliteration	R	G	I	I	I	I	I	I	2	2	2	2	2	2
Hayden	1528	2.8	Level 2 Obliteration	R	BG	BG	BG	I	BG	GI	I	2	2	2	2	2	1
Hayden	1530	4.0	Light Reconstruction	R	O	O	O	O	O	O	O	X	X	2	X	X	1
Hayden	1535	8.0	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Hayden	1535-UF	1.3	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	1535-UH	1.0	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	1536	2.3	Heavy Reconstruction	A	BI	BI	BI	BI	BI	BI	BI	2	2	2	2	2	2
Hayden	1536	2.3	Culvert Upgrades	A	BI	BI	BI	BI	BI	BI	BI	2	2	2	2	2	2
Hayden	1562B	1.0	Heavy Reconstruction	A	I	I	I	I	I	I	I	2	2	2	2	2	X
Hayden	206	12.6	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Hayden	206-PO	1.1	Heavy Reconstruction	A	O	I	I	I	I	I	G	2	2	2	2	2	X

Table D-8. (continued)

Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status (by alternative)						Level of "certainty" (by alternative)					
						B	C	D	E	F	G	B	C	D	E	F	G
Hayden	206UA-PO	1.1	Heavy Reconstruction	A	I	I	I	I	I	I	I	2	2	2	2	2	X
Hayden	3090.11-PO	1.5	Level 2 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	437	7.9	Culvert Upgrades - Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Hayden	437.12	1.7	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	437N	1.3	Level 2 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	437-PO	0.2	Level 2 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Hayden	437-UK	0.25	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	2
Hayden	625	2.2	Level 2 Obliteration	R	O	O	O	O	O	O	I	X	X	X	X	X	1
Hayden	625.12	0.2	Level 2 Obliteration	R	I	I	I	I	I	I	I	X	X	2	X	X	1
Hayden	625.13	0.8	Level 2 Obliteration	R	I	I	I	I	I	I	I	X	X	2	X	X	1
Hayden	625N	2.4	Level 1 Obliteration	R	I	I	I	I	I	I	I	X	X	2	X	X	1
Hayden	1552	7.5	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Scott	961	1.8	Level 2 Obliteration	R	O	O	O	O	O	O	I	X	X	X	X	X	1
Steamboat	1537A	7.4	Culvert Upgrades	R	G	G	G	G	G	G	G	2	2	2	2	X	1
Steamboat	1547	1.4	Level 1 Obliteration	R	G	G	G	G	G	G	I	2	2	2	2	X	1
Steamboat	257	7.8	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Steamboat	257-UA, UC, UH	2.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	X	1
Wolf Lodge	1510	1.7	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Wolf Lodge	1510A	1.8	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Wolf Lodge	1575	2.5	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	X	1
Wolf Lodge	1581UI	2.2	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Wolf Lodge	1581UE	2.2	Culvert Upgrades	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Wolf Lodge	1581UG	0.3	Level 1 Obliteration	R	B	I	I	I	I	I	I	X	X	X	X	X	1
Wolf Lodge	202	9.2	Culvert Upgrades	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Wolf Lodge	6702	7.1	Culvert Upgrades	R	O	G	G	G	G	G	G	2	2	2	2	2	1
Wolf Lodge	814	2.2	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Wolf Lodge	814A	3.0	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Wolf Lodge	6849, 6849D, 6849E	5.6	Level 1 Obliteration	R	B	B	B	B	B	B	I	X	X	2	X	X	1

Table D-9. Road Information, Priest Lake Ranger District.

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Lower W. Branch	1041	2.4	Heavy Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Lower W. Branch	1041	< 0.1	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Lower W. Branch	1041	0.1	Heavy Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	0	1
Lower W. Branch	1042	1.3	Maintenance	A	O	O	O	O	O	O	O	2	2	2	2	2	0
Lower W. Branch	1042a	1.7	Level 1 Obliteration	R	O	I	I	I	I	I	O	4	4	4	4	4	0
Upper W. Branch	1075	6.5	Maintenance	A	O	O	O	O	O	O	O	2	2	2	2	0	0
Upper W. Branch	1075a	1.1	Light Reconstruction	A	G	G	G	G	G	G	G	2	2	2	2	0	0
Upper W. Branch	1075b	0.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	0	1
Upper W. Branch	1075b	2.1	Level 1 Obliteration	R	G	I	I	I	I	G	I	2	2	2	2	0	1
Upper W. Branch	1075c	1.4	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	0	1
Upper W. Branch	1075c	0.5	Level 1 Obliteration	R	G	I	I	I	I	G	I	2	2	2	2	0	1
Upper W. Branch	1075d	0.6	Level 1 Obliteration	R	G	I	I	I	I	G	I	2	2	2	2	0	1
Upper W. Branch	1075d	0.3	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	0	1
Upper W. Branch	1075f	< 0.1	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	0	0
Upper W. Branch	1075f	1.8	Level 1 Obliteration	R	G	I	I	I	I	G	G	4	4	4	4	0	0
Upper W. Branch	1075j	1.1	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	0	1
Upper W. Branch	1075k	0.5	Level 1 Obliteration	R	G	I	I	I	I	G	G	4	4	4	4	0	0
Upper W. Branch	10751	1.0	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Upper W. Branch	1075m	0.8	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	0	1
Upper W. Branch	1075n	2.4	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	0	1
Upper W. Branch	1081	1.0	Level 1 Obliteration	R	B	I	I	I	I	B	B	4	4	4	4	0	0
Lower W. Branch	1084	0.5	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Upper W. Branch	1089a	1.2	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Lower W. Branch	1092d	0.1	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1

Table D-9. Road Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Lower W. Branch	1092L	0.9	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Lower W. Branch	1092L	0.2	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	3	2	3	1
Lower W. Branch	1092q	0.4	Level 1 Obliteration	R	O	O	O	I	O	O	I	0	0	2	0	0	1
Upper W. Branch	1094	0.4	Maintenance	A	O	O	O	O	O	O	O	2	2	2	2	0	0
Upper W. Branch	1094a	0.5	Level 1 Obliteration	R	B	I	I	I	I	B	I	2	2	2	2	0	1
Upper W. Branch	1094b	2.2	Light Reconstruction	R	B	B	B	B	B	B	B	2	2	2	2	0	1
Upper W. Branch	1094b spur	0.7	Level 1 Obliteration	R	O	I	I	I	I	O	O	4	4	4	4	0	0
Upper W. Branch	1094b spur	0.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	0	0
Upper W. Branch	1094d	0.3	Level 1 Obliteration	R	B	I	I	I	I	B	B	4	4	4	4	0	0
Lower W. Branch	1095	5.5	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Lower W. Branch	1095a	0.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	4	0
Lower W. Branch	1095a	1.1	Level 1 Obliteration	R	B	I	I	I	I	I	B	4	4	4	4	4	0
Lower W. Branch	1095b	0.1	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Lower W. Branch	1095b	0.1	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	4	0
Lower W. Branch	1095b	1.6	Level 1 Obliteration	R	B	I	I	I	I	I	B	4	4	4	4	4	0
Lower W. Branch	1095spur	2.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	0	0	4	0	0	0
Lower W. Branch	1096a	0.3	Level 1 Obliteration	R	B	I	I	I	B	I	I	2	2	2	0	2	1
Lower W. Branch	1098	8.2	Light Reconstruction	A	O	O	O	O	O	O	O	2	2	2	2	2	0
Lower W. Branch	1098	< 0.1	Light Reconstruction	A	O	O	O	O	O	O	O	2	2	2	2	0	0
Upper W. Branch	1108 segment1	1.6	Level 2 Obliteration	R	O	I	I	I	I	O	I	2	2	2	2	0	1
Upper W. Branch	1108 segment2	0.7	Level 1 Obliteration	R	I	I	I	I	I	I	I	1	1	1	1	0	1
Upper W. Branch	1108 segment2	2.8	Level 1 Obliteration	R	B	I	I	I	I	B	I	1	1	1	1	0	1
Upper W. Branch	1108 segment2	0.8	Level 1 Obliteration	R	O	I	I	I	I	O	I	1	1	1	1	0	1
Upper W. Branch	1108 segment3	0.8	Maintenance	A	O	O	O	O	O	O	O	2	2	2	2	0	0

Table D-9. Road Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Upper W. Branch	1108b	1.0	Level 1 Obliteration	R	B	I	I	I	I	B	I	2	2	2	2	0	1
Upper W. Branch	1108b	0.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	0	1
Lower W. Branch	1109	0.3	Maintenance	A	G	G	G	G	G	G	G	2	2	2	2	0	0
Lower W. Branch	1115	2.1	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	0
Lower W. Branch	1142	8.7	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Quartz	1300f	2.1	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Upper W. Branch	1308a	0.3	Level 1 Obliteration	R	O	I	I	I	I	I	I	1	1	1	1	1	1
Binarch-Lamb	1308e spurs	0.1	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Upper W. Branch	1308e spurs	0.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	4	0
Upper W. Branch	1308f	0.6	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Upper W. Branch	1308f	0.1	Level 1 Obliteration	R	O	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	1308g	0.4	Level 1 Obliteration	R	O	I	I	I	I	I	O	4	4	4	4	4	0
Lower W. Branch	1312	2.2	Maintenance	A	B	B	B	B	B	B	B	2	2	2	2	2	0
Lower W. Branch	1312jeep	1.3	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Lower W. Branch	1314	0.2	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Quartz	1314C/stacked	1.1	Level 1 Obliteration	R	G	I	I	I	I	I	G	4	4	4	4	4	0
Lower W. Branch	1314F	1.7	Heavy Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Lower W. Branch	1332f	0.7	Level 1 Obliteration	R	O	I	I	I	I	I	I	1	1	1	1	1	1
Quartz	1334maze	1.2	Level 1 Obliteration	R	B	I	I	I	I	I	B	4	4	4	4	4	0
Quartz	1334maze	4.5	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	4	0
Lower W. Branch	1335	2.7	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	0
Quartz	1335	0.6	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Quartz	1335	< 0.1	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	2
Quartz	1335	< 0.1	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	0

Table D-9. Road Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Lower W. Branch	1335A	0.9	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Lower W. Branch	1335C	0.9	Level 1 Obliteration	R	O	I	I	I	I	I	O	4	4	4	4	4	0
Upper W. Branch	1336a	0.6	Level 1 Obliteration	R	G	I	I	I	I	I	G	4	4	4	4	4	0
Upper W. Branch	1336a	< 0.1	Level 1 Obliteration	R	G	I	I	I	I	G	G	4	4	4	4	0	0
Upper W. Branch	1336maze	1.1	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	4	0
Lakeface Granite	1340	2.2	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Lakeface Granite	1340	0.1	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Lakeface Granite	1340a	1.3	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Lakeface Granite	1347	0.1	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Lakeface Granite	1347a	2.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	1	1	1	1	1	1
Lower W. Branch	1906a	0.8	Level 1 Obliteration	R	B	I	I	I	B	I	I	2	2	2	0	2	1
Upper W. Branch	1906a	0.1	Level 1 Obliteration	R	B	I	I	I	B	I	I	2	2	2	0	2	1
Lower W. Branch	2117	0.3	Light Reconstruction	R	I	I	I	I	I	I	I	4	4	4	4	4	0
Lower W. Branch	2117	2.4	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Lower W. Branch	2117	0.1	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Lower W. Branch	2121	3.0	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Lower W. Branch	2232	0.9	Light Reconstruction	A	G	G	G	G	G	G	G	2	2	2	2	2	0
Lower W. Branch	2232A	0.7	Light Reconstruction	A	G	G	G	G	G	G	G	2	2	2	2	2	0
Lakeface Granite	2245 network	2.1	Level 1 Obliteration	R	O	I	I	I	I	I	I	1	1	1	1	1	1
Lakeface Granite	2249	2.5	Maintenance	R	G	G	G	G	G	B	G	2	2	2	2	2	1
Lakeface Granite	2249	1.1	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Lakeface Granite	2249a	1.3	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Lakeface Granite	2249a	0.6	Level 1 Obliteration	R	I	I	I	I	I	I	I	1	1	1	1	1	1
Lower W. Branch	2250	2.0	Light Reconstruction	A	G	G	G	G	G	G	G	2	2	2	2	2	0

Table D-9. Road Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Lower W. Branch	2250	< 0.1	Light Reconstruction	A	G	G	G	G	G	G	G	2	2	2	2	0	0
Lower W. Branch	2250a	1.6	Level 1 Obliteration	R	G	I	I	I	I	I	I	2	2	2	2	2	1
Lower W. Branch	2250a	0.1	Level 1 Obliteration	R	I	I	I	I	I	I	I	2	2	2	2	2	1
Lower W. Branch	2250b	0.3	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Lower W. Branch	2291a	0.3	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Lower W. Branch	2291a	1.1	Level 1 Obliteration	R	B	I	I	I	I	I	I	2	2	2	2	2	1
Lower W. Branch	2291f	1.1	Level 1 Obliteration	A	O	I	I	I	I	I	O	4	4	4	4	4	0
Lower W. Branch	2291g	1.7	Level 1 Obliteration	R	B	I	I	I	I	I	B	4	4	4	4	4	0
Lower W. Branch	2291j	0.7	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Lower W. Branch	2291l	0.1	Level 1 Obliteration	R	O	I	I	I	I	I	O	4	4	4	4	4	0
Upper W. Branch	2292	1.8	Light Reconstruction	R	O	O	O	O	O	O	O	2	0	2	2	0	1
Upper W. Branch	2292a	0.8	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	2292c end seg	0.5	Level 1 Obliteration	R	O	I	O	I	I	O	O	4	0	4	4	0	0
Upper W. Branch	2292e	1.7	Light Reconstruction	R	O	O	O	O	O	O	O	2	0	2	2	0	1
Upper W. Branch	2292e spur	0.4	Level 1 Obliteration	R	I	I	I	I	I	I	I	4	4	4	4	0	0
Binarch-Lamb	2423	0.2	Level 1 Obliteration	R	I	I	I	I	I	I	I	0	0	4	0	4	0
Binarch-Lamb	2423	3.3	Level 1 Obliteration	R	B	B	B	I	B	I	B	0	0	4	0	4	0
Upper W. Branch	2730a	0.6	Level 1 Obliteration	R	B	B	B	I	B	I	B	0	0	4	0	4	0
Lower W. Branch	305.2 spur	0.4	Level 1 Obliteration	R	B	I	I	I	I	B	B	4	4	4	4	0	0
Binarch-Lamb	310	0.5	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	312	0.4	Road Relocation	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Binarch-Lamb	313	1.2	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Binarch-Lamb	313	1.3	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Lower W. Branch	318	5.9	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1

Table D-9. Road Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Lower W. Branch	318a	0.3	Maintenance	A	G	G	G	G	G	G	G	2	2	2	2	0	0
Lower W. Branch	318f	2.8	Level 1 Obliteration	R	G	I	I	I	I	G	G	4	4	4	4	0	0
Lower W. Branch	318j	3.2	Heavy Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	0	1
Upper W. Branch	333	1.7	Level 1 Obliteration	R	O	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	333	1.3	Level 1 Obliteration	R	I	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	333	2.7	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Upper W. Branch	333b	0.1	Light Reconstruction	R	B	B	B	B	B	B	B	2	2	2	2	0	1
Upper W. Branch	333b	0.3	Light Reconstruction	R	I	O	O	O	O	O	O	2	2	2	2	0	1
Upper W. Branch	333b	3.5	Light Reconstruction	R	B	O	O	O	O	O	O	2	2	2	2	0	1
Upper W. Branch	333g	1.2	Level 1 Obliteration	R	B	I	I	I	I	B	I	2	2	2	2	0	1
Quartz	334	0.5	Erosion Control	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Upper W. Branch	336	1.9	Level 1 Obliteration	R	B	B	B	I	B	B	B	0	0	4	0	0	0
Upper W. Branch	336	1.0	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336	< 0.1	Level 1 Obliteration	R	G	G	G	I	G	G	G	0	0	4	0	0	0
Upper W. Branch	336	0.3	Level 1 Obliteration	R	I	I	I	I	I	I	I	0	0	4	0	0	0
Upper W. Branch	336	0.3	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336	< 0.1	Level 1 Obliteration	R	O	O	O	I	O	O	O	0	0	4	0	0	0
Upper W. Branch	336	0.8	Level 1 Obliteration	R	I	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336c	< 0.1	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336c	1.1	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336d	3.3	Level 1 Obliteration	R	B	B	B	I	B	B	B	0	0	4	0	0	0
Upper W. Branch	336d	0.2	Level 1 Obliteration	R	G	G	G	I	G	G	G	0	0	4	0	0	0
Upper W. Branch	336e	1.0	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336e	0.8	Level 1 Obliteration	R	I	I	I	I	I	I	I	1	1	1	1	1	1

Table D-9. Road Information, Priest Lake Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Upper W. Branch	336e	0.3	Level 1 Obliteration	R	G	I	I	I	I	I	I	1	1	1	1	1	1
Upper W. Branch	336h	4.7	Level 1 Obliteration	R	B	I	I	I	I	I	I	1	1	1	1	1	1
Quartz	416	0.6	Erosion Control	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Quartz	416	0.5	Road Relocation	R	O	O	O	O	O	O	O	1	1	1	1	1	1
Upper W. Branch	461d	0.6	Level 1 Obliteration	R	O	I	I	I	I	O	I	2	2	2	2	0	1
Lower W. Branch	462	0.8	Level 1 Obliteration	R	G	G	G	I	G	G	I	0	0	2	0	0	1
Lower W. Branch	462	1.6	Level 1 Obliteration	R	B	B	B	I	B	B	I	0	0	2	0	0	1
Lower W. Branch	462a	0.4	Level 1 Obliteration	R	B	B	B	I	B	I	I	0	0	2	0	2	1
Lower W. Branch	462a	2.9	Level 1 Obliteration	R	G	G	G	I	G	I	I	0	0	2	0	2	1
Lower W. Branch	462a	0.3	Level 1 Obliteration	R	I	I	I	I	I	I	I	0	0	2	0	2	1
Lower W. Branch	462c	1.2	Light Reconstruction	A	G	G	G	G	G	G	G	2	2	2	2	2	0
Lower W. Branch	462c	< 0.1	Light Reconstruction	A	G	G	G	G	G	G	G	0	0	3	0	0	0
Lakeface Granite	638	1.4	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1
Binarch-Lamb	639	1.5	Level 1 Obliteration	R	B	I	I	I	I	B	I	2	2	2	2	0	1
Binarch-Lamb	639	0.3	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Binarch-Lamb	639	0.3	Heavy Reconstruction	R	O	O	O	O	O	O	O	4	4	4	4	4	0
Binarch-Lamb	639b	1.9	Level 1 Obliteration	R	O	I	I	I	I	I	O	4	4	4	4	4	0
Binarch-Lamb	639c	0.1	Maintenance	A	O	O	O	O	O	O	O	2	2	2	2	2	1
Binarch-Lamb	639c	3.1	Maintenance	A	G	G	G	G	G	G	G	2	2	2	2	2	1
PLSW094	639c	< 0.1	Maintenance	A	G	G	G	G	G	G	G	2	2	2	2	2	1
Upper W. Branch	659a	0.2	Light Reconstruction	R	O	O	O	O	O	O	O	0	0	3	0	0	1
Upper W. Branch	659a	3.2	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	0	1

Table D-10. Road Information, Newport Ranger District.

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Newport	112	0.5	Maintenance	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	1900016	1	Level 1 Obliteration	R	O	I	I	I	I	I	I	1	1	1	1	1	1
Newport	1914	0.8	Maintenance	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Newport	1914	1.3	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Newport	1914	2.2	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	1914112	0.1	Maintenance	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	1914120	1	Heavy Reconstruction	R	O	O	O	O	O	O	O	0	0	3	0	3	1
Newport	1914205	0.6	Light Reconstruction	R	G	G	G	G	G	G	G	0	0	3	0	3	1
Newport	1914205	1.1	Light Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Newport	1921	1.7	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	318j	0.1	Heavy Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	0	1
Newport	3200016	2.7	Level 1 Obliteration	R	O	O	O	I	O	O	I	0	0	3	0	0	1
Newport	3200016	1.8	Level 1 Obliteration	R	I	I	I	I	I	I	I	0	0	3	0	0	1
Newport	3215	2.9	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	3215	1.3	Maintenance	A	O	O	O	O	O	O	O	0	0	3	0	0	0
Newport	3215	2.7	Maintenance	A	O	O	O	O	O	O	O	2	2	2	2	0	0
Newport	3215071	0.4	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	3	1
Newport	3215071	1.3	Level 1 Obliteration	R	O	I	I	I	I	I	I	2	2	2	2	2	1
Newport	3215071	0.6	Level 1 Obliteration	R	O	I	I	I	I	O	I	2	2	2	2	0	1
Newport	3215071	1	Level 1 Obliteration	R	O	I	I	I	I	O	O	4	4	4	4	0	0
Newport	3215074	0.7	Level 1 Obliteration	R	O	I	I	I	I	O	O	4	4	4	4	0	0
Newport	3215075	0.6	Level 1 Obliteration	R	B	I	I	I	I	I	I	3	3	3	3	3	1
Newport	3215342	0.7	Level 1 Obliteration	R	O	I	I	I	I	O	O	4	4	4	4	0	0
Newport	3215342	0.8	Level 1 Obliteration	R	B	I	I	I	I	B	B	4	4	4	4	0	0
Newport	3215342	1.3	Level 1 Obliteration	R	O	I	I	I	I	O	O	4	4	4	4	0	0

Table D-10. Road Information, Newport Ranger District (continued).

Map Analysis Area Name	Road Number	Miles	Road Work Prescription	Primary Objective	Existing Access	Final Access Status						Level of "Certainty"					
						B	C	D	E	F	G	B	C	D	E	F	G
Newport	3215346	1.8	Light Reconstruction	A	O	O	O	O	O	O	O	2	2	2	2	0	0
Newport	5015020	4.1	Maintenance	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Newport	5015020	0.2	Heavy Reconstruction	R	G	G	G	G	G	G	G	2	2	2	2	2	1
Newport	CR3318	1.5	Maintenance	R	O	O	O	O	O	O	O	0	0	3	0	0	1
Newport	CR3407	<0.1	Heavy Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	CR3407	1.1	Light Reconstruction	R	O	O	O	O	O	O	O	2	2	2	2	2	1
Newport	none	0.4	Level 1 Obliteration	R	O	O	O	I	O	I	I	0	0	3	0	3	1

APPENDIX E - REASONABLY FORESEEABLE ACTIVITIES

Reasonably Foreseeable and Ongoing Projects on the Coeur d'Alene River Ranger District

The following tables displaying project activities that are either reasonably foreseeable or are actually ongoing at this time. The tables do not include routine activities such as preferred fuelwood areas, road maintenance, and special use permits. All of the activities identified will be complete within the next 5 years.

Table E-1. Reasonably Foreseeable Projects, Coeur d'Alene River Ranger District.

Project	Activities	Watershed
Horizon Moon	Timber harvest	1701030306
Stella Ice	Salvage sale	170103030600
Cantfield Ice	Salvage sale	170103050621
Huckleberry Ice	Salvage sale	170103030600
US West	Special use permit, Fourth of July Pass	1701030306
Access Management	Road and trail management	District-wide
Noxious Weeds	Integrated noxious weed treatment	District-wide

Table E-2. Ongoing Recreation Projects, Coeur d'Alene River Ranger District.

Project	Activities	Watershed
Fish Ponds	Development of fish ponds at Clee Creek and Bumblebee Meadows	1701030100 1701030103
Bumblebee Meadows	Dispersed recreation site protection	1701030103
Thompson Lake	Wildlife viewing at the parking lot	1701030318
Rainy Hill	Parking improvement	1701030318
Huckleberry/Spades	Trail construction	1701030512
Marie Creek #241	Trail reconstruction	170103030603
Snowmobile Trailhead	Trail construction at Fernan Saddle	1701030303, 06

Table E-3. Ongoing Grazing Allotment Projects, Coeur d'Alene River Ranger District.

Project	Activities	Watershed
Iron Mokins	Grazing allotment	1701030512 1701030103 170103010342 170103010345
Hayden	Grazing allotment	1701030512
Lancaster	Grazing allotment	1701030512
Searchlight	Grazing allotment	170103030603
Blue Lake	Grazing permit	170103031800
Killarney	Grazing permit	170103031800
Thompson	Grazing permit	170103031800
Hollister	Grazing allotment	170103051206

Table E-4. Ongoing Minerals Projects, Coeur d'Alene River Ranger District

Project	Activities	Watershed
Graffenberger (Trail Creek drainage)	Placer-Gold Mine	1701030130
McPeak (Potosi Creek drainage)	Placer-Gold Mine	1701030130
Miller (Last Gulch drainage)	Placer-Gold Mine	1701030130
Stutzke (Trail Creek drainage)	Placer-Gold Mine	1701030130
Arnold (Duncan Gulch drainage)	Gold-Silver Lode	1701030130
Ferry (Potosi Creek drainage)	Placer-Gold Mine, special use permit	1701030130
Winkler (Bumblebee Creek drainage)	Ceramic grade clay source	170103010381
Curtis	Placer-Gold Mine	1701030130
Beauty Creek	Abandoned mine (CERCLA)	170103030900

Table E-5. (continued)

Project	Activities	Watershed
Deer Forks Ice	Noxious weed treatment, brush disposal	170103051209
Happy Hog Salvage	Noxious weed treatment, wildlife improvement, aquatics work, thinning and pruning, brush disposal, exams	170103030042
High Horse Ice	Noxious weed treatment, brush disposal	170103051206
Horizon Sun	Aquatics work, exams, planting, brush disposal, thinning, noxious weed treatment, recreation, wildlife improvement	170103030603
I-90 Heli Ice	Brush disposal, noxious weed treatment, exams	170103030600
Rookie Hart Salvage	Noxious weed treatment, wildlife improvement, planting, exams, brush disposal	170103010022
South Carlin Heli Ice	Noxious weed treatment	170103030042
Steamboat Salvage	Brush disposal, planting, exams	170103010900
Alder Creek	Exam, thinning (Closed Sale)	170103030606
Alder Kid	Aquatic restoration	1701030130
Alder Rehab	Exam (Closed Sale)	170103030606
Backdoor Ice	Noxious weed treatment, aquatics work, brush disposal (Closed Sale)	170103051209
Barrymore Indian	Exams, brush disposal, planting (Closed Sale)	170103010933, 36
Breakwater	Thinning , exams (Closed Sale)	170103010378, 00
Bronco Beauty Rehab	Thinning , exams (Closed Sale)	1701030309
Bumblebee	Thinning , exams (Closed Sale)	170103010381
Burnt Tepee	Exams (Closed Sale)	170103010375
Capitol Hill	Aquatic restoration	1701030130
Carlin Ice Salvage	Noxious weed treatment, aquatics work, planting, exams, brush disposal (Closed Sale)	170103030042
Crinkle Kut	Exams, planting, brush disposal, thinning, noxious weed treatment, aquatics work, wildlife improvement (Closed Sale)	170103032412, 18, 21, 24
Crown Heli Ice II	Noxious weed treatment (Closed Sale)	170103030015
Deer Forks	Exams, planting, brush disposal, noxious weed treatment, aquatics work, wildlife improvement (Closed Sale)	170103051206, 09, 12
Deersham	Planting, brush disposal, exams, thinning (Closed Sale)	170103051206
Dry Ice Salvage	Recreation, noxious weed treatment, aquatics work, brush disposal (Closed Sale)	170103030309
Dubrielle	Wildlife improvement, exams (Closed Sale)	170103031800
Dudley	Aquatic restoration	1701030130
Eighty One Ice	Brush disposal (Closed Sale)	170103030603
Elk Mountain	Thinning, exams (Closed Sale)	170103031809
English Ice Salvage	Noxious weed treatment, recreation, wildlife improvement, planting, exams (Closed Sale)	170103051200
English Point Salvage	Brush disposal (Closed Sale)	170103051200
Fernan Heli Ice	Exams, noxious weed treatment, brush disposal (Closed Sale)	170103030303, 09, 12
Firewater Rehab	Noxious weed treatment, brush disposal, wildlife improvement, brush disposal, exams (Closed Sale)	170103030015
Fortier	Thinning, exams (Closed Sale)	170103031815

Table E-5. (continued)

Project	Activities	Watershed
Hayden Bluff Salvage	Brush disposal (Closed Sale)	1701030512
Hayden Fuelbreak	Recreation, brush disposal, noxious weed treatment, wildlife improvement (Closed Sale)	1701030512
Idaho Gulch	Planting, Exams (Closed Sale)	1701030127
Hayden Salvage	Brush disposal, planting, exams noxious weed treatment, aquatics work, wildlife improvement (Closed Sale)	1701030512
Ice Breaker Salvage	Noxious weed treatment, recreation, planting, exams (Closed Sale)	170103031515
Ice Hayden Heli	Noxious weed treatment, exams, brush disposal, aquatics work, recreation (Closed Sale)	170103051206
Idaho Gulch	Planting, exams (Closed Sale)	1701030127
Jungleberry	Thinning, exams (Closed Sale)	170103030603
Killarney	Noxious weed treatment, recreation, wildlife improvement, brush disposal, aquatics work, exams (Closed Sale)	170103031500
King's Ridge	Planting, exams, recreation, wildlife improvement, brush disposal (Closed Sale)	170103013012
King's Ridge Salvage	Planting, exams, brush disposal (Closed Sale)	170103013012
Last Chance Salvage	Brush disposal (Closed Sale)	170103030609
Lower White	Aquatic restoration	1701030130
McLeans/Nilsen Ice	Noxious weed treatment, wildlife improvement, brush disposal, planting, exams aquatics work (Closed Sale)	170103051209
Millrose Curran	Noxious weed treatment, thinning, planting, exams, brush disposal, aquatics work, wildlife improvement (Closed Sale)	170103031818
Mokins Ice Salvage	Exam (Closed Sale)	1701030512
Night Owl	Aquatics work, wildlife improvement, exams (Closed Sale)	170103010300
Nordic Ski	Recreation, noxious weed treatment, brush disposal (Closed Sale)	170103030609
North Deersham	Exams, thinning, brush disposal (Closed Sale)	1701030512
Now or Never Salvage	Noxious weed treatment, exams (Closed Sale)	170103030609
Pablo Scott	Planting, exams, brush disposal, aquatics work, wildlife improvement (Closed Sale)	170103010018
Pleasant Peek	Thinning, exams (Closed Sale)	170103031542
Prado	Aquatics work, wildlife improvement, planting, thinning, exams (Closed Sale)	170103010300
Prado Ice	Brush disposal (Closed Sale)	170103010300
Prichard Peak	Planting, exams, thinning, brush disposal (Closed Sale)	170103010066, 64
Rantenan	Noxious weed treatment, aquatics work, wildlife improvement, thinning, exams (Closed Sale)	170103032427, 24
Rustic Rehab	Wildlife improvement, exams, brush disposal (Closed Sale)	170103031815
Small Fry	Exams (Closed Sale)	170103031806
Small Potatoes	Exams (Closed Sale)	170103031806
Stacel Rehab	Noxious weed treatment, aquatics work, wildlife improvement, brush disposal, planting, exams (Closed Sale)	170103030306, 09
Studer Lighter	Planting, exams (Closed Sale)	170103010006
Swan Rehab	Wildlife improvement, brush disposal, exams (Closed Sale)	170103031809
TE Break	Thinning, exams	170103010375, 00
Tumblebee Salvage	Exams (Closed Sale)	170103010381
Unknown Pony	Aquatic restoration	1701030130
Upper White	Aquatic restoration	1701030130
West Cherry Ice	Noxious weed treatment, recreation, brush disposal (Closed Sale)	170103051206
Yellow Stacel	Thinning, exams (Closed Sale)	170103030309

Table E-6. Other Projects, Coeur d'Alene River Ranger District.

Project	Activities	Watershed	Notes
IPNF Pheromone Study	Insect and Disease Management Research	Various locations across the district	NEPA done
Crinkle Ecosystem Burning	Natural fuels reduction	1701030318	---

Table E-7. Foreseeable Timber Sale Projects on Industrial Private Forest Lands and Bureau of Land Management, Coeur d'Alene River Ranger District Analysis Area.

Project	Activities	Watershed	Notes
BLM	Timber harvest (salvage). No new roads.	Coeur d'Alene Lake (Beauty Creek)	Planned activity is located in Sec. 5 near Beauty Bay. Light salvage harvest on approximately 15 acres with helicopter logging. No reforestation planned.
BLM	Timber harvest (salvage).	Chain Lake (Killarney)	Planned activity is located in T48N, R2W, adjacent to Killarney Lake. Salvage harvest on 63 acres with helicopter logging and 10 acres with tractor logging. 400 feet new road and 1/2 acres landing. 1.8 miles road renovation, .3 miles road reclamation and 24 acres weed management will also occur.

Reasonably Foreseeable and Ongoing Projects on the Priest Lake Ranger District

The following tables displaying project activities that are either reasonably foreseeable or are actually ongoing at this time. The tables do not include routine activities such as road and powerline maintenance activities. In general, projects are only listed if they occur or may occur within the boundaries of cumulative effects analysis areas.

Table E-8. Foreseeable Timber Sale Projects on Lands Administered by Forest Service, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Art's Project	Timber harvest (cutting of hazard trees alongside of roads 2512, 1347, 638, 1341). Small Sale. No road construction or reconstruction.	Tango, Beaver, Granite, Dusty, Jost, Blacktail.	NEPA complete. Sale advertisement anticipated winter 98/99.
Fedar WP	Timber harvest (salvage of dying WP plantation). Small Sale. No road construction or reconstruction.	Fedar	NEPA complete. Advertisement on hold b/c Forest Guardian lawsuit.
Nordman Powerline	Timber harvest (cutting of hazard trees along powerline and fuels reduction). Small Sale. No road construction or reconstruction.	Reeder	NEPA complete. Sale advertisement anticipated fall 99.
Six Quartz	Timber harvest (thinning w/in Lower Quartz TS #6). Small Sale. No road construction or reconstruction.	Quartz	NEPA complete. Sale advertisement anticipated summer 99.
Stimson Access	Private access request and potential private harvest	Upper Granite	Under analysis, NEPA is not complete. Earliest implementation mid-2000
Kalispell	Salvage of offsite plantations	Kalispell	NEPA not done. DEIS being prepared. Earliest possible implementation Summer / Fall 2000
Lake Face Lamb	Fuels reduction and salvage harvest. 4.4 miles road reconstruction, 3.6 miles temp. road construction	Lamb and Kalispell	NEPA not done. EA released for public comment. Earliest possible begin implementation late 1999

Table E-9. Foreseeable Timber Sale Projects on Industrial Private Forest Lands and State Lands, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Idaho Dept. Lands	Timber harvest (salvage). No new roads.	Lower W. Branch (Pine Cr)	Planned activity is located in T56N, R5W, Sec. 5 near Newport Hill. On approx. 10 acres, canopy will be reduced from 80% to 35%. On portions of other areas in the section, a light salvage will take place but because the area is very open now, the canopy cover will not be reduced substantially.
Stimson Timber Co.	Timber harvest (approx. 30 ac.) One mile of road construction.	Snow Cr	Planned activity is located in T57N, R6W, Sec.25 near Stone Johnny. Planned for 2002. Approx. 50% canopy left after harvesting.
Stimson Timber Co.	Timber harvest (approx. 290 ac.) No new roads.	Granite (Sema)	Planned activity is located in T36N, R45E, Sec. 3 near Petit Lk. Planned for 2002. Approx. 30% canopy left after harvesting.
Stimson Timber Co.	Timber harvest (approx. 260 ac.) No new roads.	Granite (Sema)	Planned activity is located in T36N, R45E, Sec. 9 near Kalispell Rock. Planned for 2000. Approx. 30% crown left.
Crown Pacific Timber Co. -Snow Valley	Timber harvest (approx. 80 ac.)	Lower W. Branch (Snow)	Planned within two years. Approx. 30% of the volume in the stand would be removed.
Crown Pacific Timber Co.- Lower West Branch	Timber harvest (approx. 25 ac.)	Lower W. Branch	Clearcut harvest.
Crown Pacific Timber Co. - Murray Cr.	Timber harvest (approx. 100 ac.)	Lower W. Branch (Murray Cr)	Planned for 1999. 30% of the volume would be removed.
Crown Pacific Timber Co-Upper W. Branch	Timber harvest. Small Sale	Upper W. Branch	About 4 MBF of blowdown would be salvage in 1999.

Table E-10. Foreseeable Forest Service and County Road Projects, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Lamb Cr. Rd FS #310	Road Repair	Lamb Cr.	Realign approx. 130 feet of road and rehab. washout. Disturbance approx. 1 ac. Planned for 1999. ERFO.
Gleason Boswell Rd FS #1098.	Road Repair	Lower W. Branch (Moores)	Repair washout and rehab. site. Disturbance less than 1 acre. Planned for 1999. ERFO.
Bear Paw Rd (County Rd-- FS #305)	Road Relocation	Lower W. Branch	Relocate 2000' of road to move away from unstable soil. Rehab. existing slide and obliterate the abandoned road. Clearing for new location done 1998. New construction planned for 1999. Total disturbed area is 5 acres.
Nordman-Metaline Falls Rd -FS #302.	Road Resurfacing	Granite	Resurfacing road for 10.7 miles. Rock will come from existing pit. Planned for 1999.
FS Road 638 C	Road Repair	Granite	Repair washout on this spur road near Granite Mtn. Planned for 1999.

Table E-11. Foreseeable Wildlife Burns, Recreation, Road Access, and Miscellaneous Projects, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Roundtop Ridge Ecoburn	Ecoburn project to [protect Caribou Habitat	Granite Cr.	Prescribe burn over approx. 30 acres in 1999 or 2000.
Castro Ecoburn	Ecoburn project for big game and general vegetative restoration objectives.	Lower W. Branch (Saddler and Cuban Cr.)	Ecoburn approx. 104 ac. in the Castro TS area in 1999. NEPA complete.
Pee Wee Ecoburn	Ecoburn project for big game.	Lower W. Branch (Kavanaugh)	Ecoburn approx. 20 ac. Planned for 1999. NEPA complete.
Woodrat Wildlife Burn	Burn for big game habitat enhancement.	Lamb Cr	Burn approx. 20 ac. Planned for 1999. NEPA completed.
North Baldy Trail System	Reconstruct and construct a trail system in the Upper W. Branch	Upper W. Branch	Construct approx. 3 miles of hiking trail and reconstruct and/or brush open approx. 17 miles of trails.
N.Lights Power Line Access Rds	Special Use Permit for N. Lights to construct 850' of new roads to access powerlines.	Reeder	NEPA completed. Road work anticipated in 1999. Spurs would be constructed off of the existing roads 1044A and 1044C.

Table E-12. Active Timber Sale Projects (contracts still open), Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Road 2298	Small Roadside Salvage Sale	Lamb	
Buck Ranch	Small Salvage Sale	Upper W. Branch	
Butch Creek	Large Timber Sale	Lower W. Branch	
Castro Triangle	Small Salvage Sale		
Dusty Peak	Large Timber Sale	Granite (Packer, Dusty)	
Four Corners	Small Timber Sale	Lower W. Branch	
Ojibway Bugs	Small Salvage Sale	Lower W. Branch (Bear Paw)	
Pref HQ	Small Salvage Sale	Priest River (Benton)	Sale on Priest River Exp. Forest
Reed In Salvage	Small Salvage Sale	Reeder(Indian)	
Rogers Mosquito	Large Timber Sale	Lower W. Branch (Roger, Mosquito)	
Rocky Vista II	Small Salvage Sale	Priest River	
Snow Goose	Small Salvage Sale	Upper Priest River (Goose)	
Snicks Toe	Small Sale	Reeder	
Snow Latola	Small Salvage Sale	Upper W. Branch	
Solo Grouse	Large Salvage Sale	Lower W. Branch (Solo,Galena,Klahowya)	
Stone Bead	Large Salvage Sale	Lower W. Branch (Ole, Tunnel)	

Table E-13. Timber Sale Projects with Closed Contracts that still have slash disposal and/or reforestation work planned, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Hanna Salvage	Small Salvage Sale	Reynolds	
Lakeshore Blowdown	Small Salvage Sale	Priest Lake	
McLamb Salvage	Small Salvage Sale	Lamb	
Murry Cr	Large Sale	Lower W. Branch (Murry Cr and Moores)	
Nordman LPP	Small Sale	Reeder	
Peterson Rd Pine	Small Salvage Sale	Lower W. Branch (Pine)	
Ponderosa Connection	Small Sale	Lower W. Branch	
Pref Snow and Wind	Small Salvage Sale	Priest River (Benton)	Sale is on the Priest River Exp. Forest
Pure Paw	Small Roadside Salvage Sale	Lower W. Branch (Mosquito, Bear Paw, Roger)	
Section 16	Washington State DNR Timber Sale	Lower W. Branch (Ojibway)	Land exchange occurred; FS acquired the section after DNR logged. Needs brush disposal and planting work.
1347 Salvage	Small Salvage Sale	Granite Cr (Media)	
12 Mile	Large Timber Sale	Lower W. Branch (Moores)	

Table E-14. Ongoing Grazing Allotments, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Upper Squaw Valley	Grazing allotment	Upper W. Branch	
Lower Squaw Valley	Grazing allotment	Upper W. Branch	
Lamb Creek	Grazing allotment	Lamb	
Flat Creek	Grazing allotment	Lower W. Branch (Flat)	
Moores Creek	Grazing permit	Lower W. Branch (Moores)	
Four Corners	Grazing permit	Lower W. Branch	
Kavanaugh Creek	Grazing permit	Lower W. Branch (Kavanaugh)	

Table E-15. Other Projects, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
IPNF Pheromone Study	Insect and Disease Management Research, Approximately 200 acres	Various locations across the district	NEPA done

Reasonably Foreseeable and Ongoing Projects on the Newport Ranger District

The following tables displaying project activities that are either reasonably foreseeable or are actually ongoing at this time. The tables do not include routine activities such as road and powerline maintenance activities. In general, projects are only listed if they occur or may occur within the boundaries of cumulative effects analysis areas.

Table E-16. Foreseeable Timber Sale Projects on Lands Administered by Forest Service, Newport Ranger District.

Project	Activities	Watershed	Notes
Bearfoot	Timber harvest. Large Sale. Some road construction/ reconstruction.	Newport (Cooks, Skookum)	NEPA complete. Sale advertisement anticipated Feb. 1999.
Papoose	Timber harvest. Large Sale. Some road reconstruction.	Newport (Half Moon)	NEPA complete.
Snow	Timber harvest. Small Sale.	Pend Oreille	NEPA complete.

Table E-17. Foreseeable Timber Sale Projects on Industrial Private Forest Lands and State Lands, Newport Ranger District.

Project	Activities	Watershed	Notes
Washington State Dept. Nat. Resources-McCloud Timber Sale	Large Timber Sale.	Newport (Skookum)	Sale Planned for 2002. 540 acres, T32N,R44E, S2 and S10. 50% canopy left.

Table E-18. Active Timber Sale Projects (contracts still open), Newport Ranger District.

Project	Activities	Watershed	Notes
New Moon	Large Sale	Newport	Some Rd const./reconst.
Foot	Small Sale	Newport	

Table E-19. Other Projects, Priest Lake Ranger District.

Project	Activities	Watershed	Notes
Newport DF Beetle Pheromone Study	Insect and Disease Management Research,	Various locations across the district	NEPA done

APPENDIX F - BEST MANAGEMENT PRACTICES

COEUR D'ALENE RIVER AND PRIEST LAKE RANGER DISTRICTS

Introduction

The Clean Water Act, as amended, (33 U.S.C. 1323) directs the Forest Service to meet state, interstate and local substantive as well as procedural requirements respecting control and abatement of pollution in the same manner, and to the same extent as any nongovernment entity.

The Forest Service has the statutory authority to regulate, permit and enforce land-use activities on the National Forest System lands that affect water quality.

As the designated management agency, the Forest Service is responsible for implementing nonpoint source pollution control and the Idaho State Water Quality Standards on National Forest System lands. The Forest Service's water quality policy is intended to:

1) *promote the improvement, protection, restoration and maintenance of water quality to support beneficial uses on all national forest service waters;*
2) *promote and apply approved Best Management Practices (BMPs) to all management activities as the method for control of non-point source pollution;*
3) *comply with established state or national water quality goals; and*
4) *design monitoring programs for specific activities and practices that may affect or have the potential to affect instream beneficial uses on National Forest System lands.*

The Forest Service also coordinates all water quality programs, on National Forest System lands within its jurisdiction, with the local, state and federal agencies, affected public lands users, adjoining land owners, and other affected interests.[1]

The Environmental Protection Agency and the States of Idaho and Washington are responsible for enforcement of these standards. The Forest Plan for the Idaho Panhandle National Forests states that the Forest will "maintain high quality water to protect fisheries habitat, water based recreation, public water supplies and be within state water quality standards" (Forest Plan, Chapter II, p. 27). The use of BMP's is also required in the Memorandum of Understanding between the Forest Service and the States of Idaho and Washington as part of our responsibility as the Designated Water Quality Management Agency on National Forest System lands.The State's water quality standards regulate nonpoint source pollution from timber management and road construction activities through application of Best Management Practices (BMPs). The BMPs were developed under authority of the Clean Water Act to ensure that Idaho's and Washington's waters do not contain pollutants in concentrations which adversely affect water quality or impair a designated use. State-recognized BMPs that would be used during project design and implementation are contained in these documents:

a. *Rules and Regulations Pertaining to the Idaho Forest Practices Act, (IFPA), as adopted by the Idaho Land Board*
b. *Rules and Regulations and Minimum Standards for Stream Channel Alterations, as adopted by the Idaho Water Resources Board under authority of the Idaho Stream Channel Protection Act (ISCPA)*
c. *Rules and Regulations Pertaining to the Washington Forest Practices as adopted by the State of Washington.*

[1] *Memorandum of Understanding Implementing the Nonpoint Source Water Quality Program in the State of Idaho, signed by USEPA, Idaho Departments of Agriculture, Water Resources, and Division of Environment; BLM; and US Forest Service, Regions 1 and 6. 1994*

Many of the rules and regulations for stream channel alterations are contained, in slightly different forms, in two Memorandum of Understandings (MOU) between the Forest Service and the States of Idaho and Washington. These MOUs are incorporated into the Forest Manual and R-1 Supplement 31, contains provisions which are not currently state-recognized BMPs.

Please refer to Chapter II of this Final EIS for site-specific and project-specific BMPs and Soil and Water Conservation Practices ("Water Quality Best Management Practices").

The practices described herein are tiered to the practices in FSH 2509.22. They were developed as part of the NEPA process, with interdisciplinary involvement, and meet state and Forest water quality objectives. The purpose of this appendix is to establish the connection between the Soil and Water Conservation Practice (SWCP) employed by the Forest Service and BMPs identified in Idaho Water Quality Standards (IDAPA 16.01.2300.05) and Washington Forest Practices Rules and Regulations (Title 222 WAC), and to identify how the Soil and Water Conservation Practice Standard Specifications for the Construction of Roads and the Timber Sale Contract provisions meet or exceed the rules and regulations pertaining to the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code as well as the Washington Forest Practices Act RCW 76.09. The relevant portions of the rules and regulations developed under the Idaho Stream Protection Act are also covered.

The objective of this appendix is to provide conservation practices for use on National Forest Lands to minimize the effects of management activities on soil and water resources. The conservation practices were compiled from Forest Service manuals, handbooks, contract and permit provisions, to directly or indirectly improve water quality, reduce losses in soil productivity and erosion, and abate or mitigate management effects, while meeting other resource goals and objectives. They are of three basic forms: administrative, preventive and corrective. These practices are neither detailed prescriptions nor solutions for specific problems. They are purposely broad. These practices are action initiating process mechanisms which call for the development of requirements and considerations to be addressed prior to and during the formulation of alternatives for land management actions. They serve as checkpoints which are considered in formulating a plan, a program and/or a project.

Although some environmental impacts may be characteristic of a management activity, the actual effects on soil and water resources would vary considerably. The extent of these management effects on soil and water resources is a function of:

1. *The physical, meteorological and hydrologic environment where the activity takes place (topography, physiography, precipitation, channel density, geology, sol type, vegetative cover, etc.).*

2. *The type of activity imposed on a given environment (recreation, mineral exploration, timber management, etc.) and its extent and magnitude.*

3. *The method of application and the duration of the activity (grazing system used, types of silvicultural practice used, constant vs. seasonal use, recurrent application or one time application, etc.).*

4. *The season of the year that the activity occurs or is applied.*

These factors vary within the National Forests in the Northern Region and from site to site. It follows then that the extent and kind of impacts are variable, as are the abatement and mitigation measures. No solution prescription, method, or technique is best for all circumstances. Thus the management practices presented in the following include such phrases as "according to the design", "as prescribed," "suitable for," "within acceptable limits," and similar qualifiers. The actual prescriptions, specifications, and designs are the result of evaluation and development by professional personnel through interdisciplinary involvement in the NEPA process. This results in specific conservation practices that are tailored to meet site-specific resource requirements and needs.

Implementation of Best Management Practices

In cooperation with the States, the Forest Service's primary strategy for the control of nonpoint sources is based on the implementation of BMPs determined necessary for the protection of the identified beneficial uses. The Forest Service Nonpoint Source Management System consists of:

1. *BMP selection and design based on site-specific conditions; technical, economic and institutional feasibility; and the designated beneficial uses of the streams.*
2. *BMP Application*
3. *BMP monitoring to ensure that they are being implemented and are effective in protecting designated beneficial uses.*
4. *Evaluation of BMP monitoring results.*
5. *Feeding back the results into current/future activities and BMP design.*

The District Ranger is responsible for insuring that this BMP feedback loop is implemented on all projects. The Practices described herein are tiered to the practices in R1/R4 FSH 2509.22. They were developed as part of the NEPA process, with interdisciplinary involvement, and meet State and Forest water quality objectives. The purpose of this appendix document is to: 1) establish the connection between the SWCP employed by the Forest Service and BMPs identified in Idaho Water Quality Standards (IDAHO APT 16.01.2300.05) and 2) identify how the SWCP, Standard Specifications for the Construction of Roads, and the Timber Sale Contract provisions meet or exceed the rules and regulations pertaining to the Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code (Best Management Practices). The relevant portions of the rules and regulations developed under the Idaho Stream Protection Act are also included.

Format of the Best Management Practices

Each Soil and Water Conservation Practice is described as follows:

Title: Includes the sequential number and a brief title.

Objective: Describes the objective(s) and the desired results for protecting water quality.

Effectiveness: Provides a qualitative assessment of expected effectiveness that the implemented BMP would have on preventing or reducing impacts on water quality. The effectiveness rating is based on: 1) literature and research (must be applicable to area 2) administrative studies (local or within similar ecosystem); and 3) professional experience (judgement of an expert by education and/or experience). The expected effectiveness is rated either High, Moderate or Low.

High: Practice is highly effective (greater than 90%) and one or more of the following types of documentation are available:

a) Literature/Research - must be applicable to area
b) Administrative studies - local or within similar ecosystem
c) Experience - judgement of an expert by education and/or experience.
d) Fact - obvious by reasoned (logical response

Moderate: Documentation shows that the practice is effective less than 90% of the time, but at least 75% of the time, or logic indicates that this practice is highly effective, but there is little or no documentation to back it up, or implementation and effectiveness of this practice would be monitored and the practice would be modified if necessary to achieve the objective of the BMP.

Low: Effectiveness unknown or unverified, and there is little to no documentation, or applied logic is uncertain in this case, or the practice is estimated to be less than 75% effective, or this practice is speculative and needs both effectiveness and validation monitoring.

The effectiveness estimates given here are general, given the range of conditions throughout the Forest. More specific estimates are made at the project level when the BMPs are actually prescribed.

Compliance: Provides a qualitative assessment of how the implementation of the specific measures would meet the Forest Practice Act Roles and Regulations pertaining to water quality.

Implementation: This section identifies: (1) the site-specific water quality protection measures to be implemented and (2) how the practices are expected to be applied and incorporated into the Timber Sale Contract.

Items Common to All Soil and Water Conservation Practices

Responsibility For Implementation: The District Ranger (through the Presale Forester) is responsible for insuring the factors identified in the following SWCP's are incorporated into: Timber Sale Contracts through the inclusion of proper B and/or C provisions; or Public Works Contracts through the inclusion of specific contract clauses.

The Contracting Officer, through his/her official representative (Sale Administrator and/or Engineering Representatives for timber sale contracts; and Contracting Officers Representative for public works contracts) is responsible for insuring that the provisions are properly administered on the ground.

Monitoring: Implementation and effectiveness of water quality mitigation measures are also monitored annually. This includes routine monitoring by timber sale administrators, road construction inspectors, and resource specialists which is documented in diaries and project files. Basically, water quality monitoring is a review of BMP implementation and a visual evaluation BMP effectiveness. Any necessary corrective action is taken immediately. Such action may include modification of the BMP, modification of the project, termination of the project, or modification of the state water quality standards.

Abbreviations

TSC = Timber Sale Contract
TSA = Timber Sale Administrator
PWC = Public Works Contract
SCA = Stream Channel Alteration Act
BMP = Best Management Practices
SPS = Special Project Specifications
CFR = Code of Federal Regulations
SAM = Sale Area Map
COR = Contracting Officer Representative
IFPA = Idaho Forest Practices Act
SWCP= Soil and Water Conservation Practices
SMZ = Streamside Management Zone
EPA = Environmental Protection Agency

There is a glossary of terms related to best management practices at the end of this appendix.

KEY SOIL AND WATER CONSERVATION PRACTICES

Class * Soil and Water Conservation Practice (FSH 2509.22)

11 WATERSHED MANAGEMENT

W 11.07 Oil and Hazardous Substance Spill Contingency Planning
W 11.09 Management by Closure to Use
W 11.11 Petroleum Storage & Delivery Facilities & Management

13 VEGETATION MANIPULATION

G 13.02 Slope Limitations for Tractor Operation
G 13.03 Tractor Operation Excluded from Wetlands, Bogs, and Wet Meadows
E 13.04 Revegetation of Surface Disturbed Areas
E 13.05 Soil Protection During and After Slash Windrowing
E 13.06 Soil Moisture Limitations for Tractor Operation

14 TIMBER

A 14.02 Timber Harvest Unit Design
A 14.03 Use of Sale Area Maps for Designating Soil and Water Protection Needs
A 14.04 Limiting the Operating Period of Timber Sale Activities
E 14.05 Protection of Unstable Areas
A 14.06 Riparian Area Designation
G 14.07 Determining Tractor Loggable Ground
E 14.08 Tractor Skidding Design
E 14.09 Suspended Log Yarding in Timber Harvesting
A 14.10 Log Landing Location and Design
E 14.11 Log Landing Erosion Prevention and Control
E 14.12 Erosion Prevention and Control Measures During Timber Sale Operations
E 14.13 Special Erosion Prevention Measures on Areas Disturbed by Harvest Activities
E 14.14 Revegetation of Areas Disturbed by Harvest Activities
E 14.15 Erosion Control on Skid Trails
E 14.16 Meadow Protection During Timber Harvesting
S 14.17 Streamcourse Protection (Implementation and Enforcement
E 14.18 Erosion Control Structure Maintenance
A 14.19 Acceptance of Timber Sale Erosion Control Measures Before Sale Closure
E 14.20 Slash Treatment in Sensitive Areas
A 14.22 Modification of the Timber Sale Contract

15 ROADS AND TRAILS

A 15.02 General Guidelines for Road Location/Design
E 15.03 Road and Trail Erosion Control Plan
E 15.04 Timing of Construction Activities
E 15.05 Slope Stabilization and Prevention of Mass Failures
E 15.06 Mitigation of Surface Erosion and Stabilization of Slopes
E 15.07 Control of Permanent Road Drainage
E 15.08 Pioneer Road Construction
E 15.09 Timely Erosion Control Measures on Incomplete Road and Stream-Crossing Projects
E 15.10 Control of Road Construction Excavation & Sidecast Material
S 15.11 Servicing and Refueling of Equipment
S 15.12 Control of Construction In Riparian Areas
S 15.13 Controlling In-Channel Excavation

S 15.14 Diversion of Flows Around construction Sites
S 15.15 Stream Crossings on Temporary Roads
S 15.16 Bridge & Culvert Installation (Disposition of Surplus Material and Protection of Fisheries)
E. 15.17 Regulation of Borrow Pits, Gravel Sources, and Quarries
E 15.18 Disposal of Right-of-Way and Roadside Debris
S 15.19 Streambank Protection
E 15.21 Maintenance of Roads
E 15.22 Road Surface Treatment to Prevent Loss of Materials
E 15.23 Traffic Control During Wet Periods
G 15.24 Snow Removal Controls
E 15.25 Obliteration of Temporary Roads
E 15.27 Trail Maintenance and Rehabilitation

18 FUELS MANAGEMENT
E 18.02 Formulation of Fire Prescriptions
E 18.03 Protection of Soil and Water from Prescribed Burning Effects

*** CLASSES OF SWCP (BMP)**

A = Administrative
E = Erosion Reduction
G = Ground Disturbance Reduction
S = Stream Channel Protection/Stream Sediment Reduction
W = Water Quality Protection

BEST MANAGEMENT PRACTICES

PRACTICE 11.07 - Oil and Hazardous Substance Contingency Planning
PRACTICE 11.11 - Petroleum Storage and Delivery Facilities and Management
PRACTICE 15.11 - Servicing and Refueling of Equipment

OBJECTIVE: To prevent contamination of waters from accidental spills of fuels, lubricants, bitumens, raw sewage, wastewater and other harmful materials by prior planning and development of Spill Prevention Control and Countermeasure Plans.

EFFECTIVENESS: Although SPCC Plans cannot eliminate the risk of materials being spilled and escaping into waters, they can, if followed, be effective at reducing adverse effects to tolerable levels. Depending on the location and quantity of a spill, a properly implemented Plan can provide for up to 100 percent containment of a spill.

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: The timber sale contract holds the Purchaser responsible for taking appropriate preventative measures to insure that any spill of oil or oil products does not enter any stream or other waters of the United States. If the total oil or oil products storage exceeds 1,320 gallons, or if any single container exceeds the capacity of 660 gallon, the Purchaser would prepare a Spill Prevention Control and Countermeasure Plan. The plan shall meet EPA requirements including certification by a registered professional engineer. If necessary, specific requirements for transporting oil to be used in conjunction with the contract would be specified in the contract.

The Forest Service would designate the location, size and allowable uses of service and refueling areas. The criteria below would be followed at a minimum:

1. *Petroleum product storage containers with capacities of more than 200 gallons, stationary or mobile, would be located no closer than 100 feet from stream, water course, or area of open water. Dikes, berms, or embankments would be constructed to contain the volume of petroleum products stored within the tanks. Diked areas would be sufficiently impervious and of adequate capacity to contain spilled petroleum products.*
2. *Transferring petroleum products: During fueling operations or petroleum product transfer to other containers, there shall be a person attending such operations at all times.*
3. *Equipment used for transportation or storage of petroleum products shall be maintained in a leakproof condition. If the Forest Service Representative determines there is evidence of petroleum product leakage or spillage, he/she shall have the authority to suspend the further use of such equipment until the deficiency has been corrected.*

In the event any leakage or spillage enters any stream, water course or area of open water, the operator would immediately notify the Forest Service who would be required to follow the actions to be taken in case of hazardous spill, as outlined in the Forest Hazardous Substance Spill Contingency Plan.

PRACTICE 11:09 - Management by Closure to Use
PRACTICE 15:23 - Traffic Control During Wet Periods

OBJECTIVE: To reduce the potential for road surface disturbance during wet weather and to reduce sedimentation probability by excluding activities that could result in damage to facilities or degradation of soil and water resources.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: Closures (seasonal, temporary, or permanent) are made when the responsible line officer determines that a particular resource or facility needs protection from use. Specific guidelines for closure of roads during the period of the contract and at the end of the Purchaser's operations would be spelled out in this EIS and the timber sale contract.

Roads that must be used during wet periods should have a stable surface and sufficient drainage to allow such use with a minimum of resource impact. Rocking, paving and armoring are measures that may be necessary to protect the road surface and reduce erosion potential. Roads not constructed for all weather use should be closed during the wet season. Where winter field operations are planned, roads may need to be upgraded and maintenance intensified to handle the traffic without creating excessive erosion and damage to the road surface.

PRACTICE 13.02 - Slope Limitations for Tractor Operation
PRACTICE 14.07 - Determining Tractor Loggable Ground

OBJECTIVE: To reduce gully and sheet erosion and associated sediment production by restricting tractor operation to slopes where corrective measures for proper drainage are easily installed and effective.

EFFECTIVENESS: In general, the less the slope percentage, the less are the chances of rilling, gullying, or soil displacement as a consequence of tracked or wheeled skidding.

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: The timber sale contract requires that the location of all skid trails and landings must be agreed upon before construction. Specific criteria that would be addressed during sale layout and pre-work with the operator would include:

General:

1. All new or reconstructed landings, skidtrails, and fire trails shall be located on stable areas outside riparian areas. Sidecasting would be held to a minimum.
2. Tractor or wheel skidding would not normally be conducted on slopes over 35 percent. Incidental tractor skidding on slopes greater than this my be allowed when determined by a hydrologist or soils scientist that to do so is preferable to other options (i.e. building additional road) and that accelerated erosion would not occur.

Skid Trails:

1. Skid trails shall be kept to the minimum feasible width and number.
2. Locate skid trails to avoid concentrating runoff and provide breaks in grade and waterbars.
3. Skidding equipment would be restricted to approved skid trails.

Landings:

1. Landing sizes would be the minimum necessary for safe, economical operation.
2. Landings and log decks would not be located within Riparian Areas.
3. Landings, log decks and/or burn piles would be located a minimum of 300 feet from streams, far enough away that direct (unfiltered) entry of sediment, bark, or ash and burning products would not occur.

PRACTICE 13.04 - Revegetation of Surface Disturbed Areas
PRACTICE 14.14 - Revegetation of Areas Disturbed by Harvest Activities

OBJECTIVE: To protect soil productivity and water quality by minimizing soil erosion.

EFFECTIVENESS: Revegetation can be moderately effective at reducing surface erosion after one growing season, following disturbance, and highly effective in later years. Effectiveness has been shown to vary from 10 percent on 3/4:1 slopes to 36 percent on 1:1 slopes to 97 percent on 1:1 slopes in later years (King, John G. and E. Burroughs. Reduction of Soil Erosion on Forest Roads. Intermountain Research Station General Technical Report, 1988).

COMPLIANCE: Meets Forest Practices Act rules.

IMPLEMENTATION: As determined necessary, temporary roads, landings skid trails, and anywhere else soil has been severely disturbed by Purchaser's harvesting operations would be seeded within one year after harvesting is completed. Seed mixes (consisting of native species) and fertilizer specifications would be incorporated into timber sale contract provisions. The timber sale contract would also include specifications for scarification/ripping of compacted landing and closed roads where this is deemed necessary by the interdisciplinary team.

PRACTICE 13.05 - Soil Protection During and Following Slash Windrowing

OBJECTIVE: To prevent removal or severe disruption of the productive surface soil and minimize losses from erosion.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act rules.

IMPLEMENTATION: Windrowing or piling of slash with tractor or grapple piling machine is a common method of fire hazard abatement and site preparation. Potential for damage to soils and water are high. On slopes, windrows should be contoured as much as possible to act as a filter barrier which catches sediment

and detains water runoff. Such piling would only be conducted on slopes greater than 50 percent upon the recommendation of a soils scientist or hydrologist. Car must be taken to minimize disturbance to the surface soil layer during these operations. Equipment would be prohibited from operating within 50 feet of streamcourses except at designated crossing areas. Areas where such slash disposal operations are acceptable would be identified in the EIS and in the timber sale contract, where site-specific specifications would be included.

Practice 13.06 - Soil Moisture Limitations for Tractor Operation

OBJECTIVE: To minimize soil compaction, puddling, rutting, and gullying with resultant sediment production and loss of soil productivity by ensuring that activities are done when ground conditions are such that erosion and sedimentation can be controlled.

EFFECTIVENESS: Responsible implementation and enforcement are required for high effectiveness.

COMPLIANCE: No Related Forest Practices Act rules.

IMPLEMENTATION: Tractor operations would be limited to periods when the soil moisture content is 18 percent or less, the ground is frozen, or there is at least 18 inches of snow depth. Tractor operations would only be allowed outside of these specifications through the sue of designated skid trails. These requirements would be incorporated into provision of the timber sale contract.

PRACTICE 14.02 - Timber Harvest Unit Design
PRACTICE 14.07 - Determining Tractor Loggable Ground
PRACTICE 14.08 - Tractor Skidding Design
PRACTICE 14.09 - Suspended Log Yarding
PRACTICE 14.10 - Log Landing Location and Design

OBJECTIVE: To insure that timber harvest unit design would maintain water quality and soil productivity by utilizing the appropriate harvest systems and by locating/designing landings and skidding patterns to best fit the terrain and avoid soil erosion.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act rules.

IMPLEMENTATION: Based upon site-specific environmental factors and the physical limitations of equipment, the interdisciplinary team would determine appropriate harvest methods for each harvest unit and this method would be specified in the timber sale contract. During the presale operation, harvest units would be designed to fit selected harvest methods. During contract administration, the location of landings, skid trails, temporary roads, and skyline corridors would be determined keeping in mind that:

1. *Machinery may not operate within 50 feet of any stream except when crossing at designated crossings.*
2. *Full suspension of logs is required across any stream except at approved crossings.*
3. *One end suspension may be required in certain soils and situations as specified in the Final EIS.*
4. *Landings may not be located within 300 feet of any creek unless approved by a hydrologist.*
5. *Skid trails would be located and designed to minimize soil disturbance.*
6. *Skid trails would be located so as to avoid concentrating runoff.*

PRACTICE 14.03 - Use of Sale Area Maps for Designating Soil and Water Protection Needs

OBJECTIVE: To delineate the location of protection areas and special treatment areas, to insure their recognition, proper consideration, and protection on the ground.

EFFECTIVENESS: High

COMPLIANCE: No related Forest Practices Act rule

IMPLEMENTATION: The following features would be designated on the sale area map:

a. The stream courses (perennial and ephemeral) listed below would be designated as Stream Course Protection areas to be protected under the timber sale contract.

<u>Coeur d'Alene River Ranger District:</u>

1. Beauty Creek Watershed - The entire mainstem length and all tributaries where management would occur under this proposal.
2. Beaver Creek Watershed - The entire mainstem length and all tributaries where management would occur under this proposal. (Includes Trail Creek Watershed and the Face Drainages)
3. Bumblebee Area - The entire area and tributaries to the North Fork CDA River where management would occur under this proposal.
4. Coeur d'Alene Lake Face Drainage - The entire area and tributaries to the North Fork CDA River where management would occur under this proposal. (Includes Blue Creek Watershed, Wolf Lodge Face Drainages, Eastern Lake Face Drainages)
5. Carlin Creek Watershed - The entire mainstem length and all tributaries where management would occur under this proposal.
6. Cedar Creek Watershed - The entire mainstem length and all tributaries where management would occur under this proposal. (Includes Alder Creek, East Fork, South Fork, and Lower Cedar Creek)
7. Chain Lakes Area - The entire area and tributaries to the North Fork CDA River where management would occur under this proposal. (Includes the Face Drainages, Rose Creek, Killarney Creek, Fortier Creek, Blue Lake Creek, and Thompson Creek)
8. Fernan Lake Watershed - The entire mainstem length and all tributaries where management would occur under this proposal.
9. Fourth of July Creek Watershed - The entire mainstem length and all tributaries where management would occur under this proposal.
10. Hart Area - The entire area and tributaries to the North Fork CDA River where management would occur under this proposal.
11. Hayden Lake Watershed - The entire mainstem length and all tributaries where management would occur under this proposal. (North Fork, East Fork, Lancaster Creek, Hayden Lake Face Drainages, Jim Creek, Mokin's Creek, Nilsen Creek)
12. Steamboat Creek Watershed - The entire mainstem length and all tributaries where management would occur under this proposal.
13. Wolf Lodge Watershed - The entire mainstem length and all tributaries where management would occur under this proposal. (Stella Creek, Wolf Lodge Creek, Marie Creek)

Priest Lake Ranger District:

1. Lower West Branch - The entire mainstem length and its tributaries
2. Upper West Branch - The entire mainstem length and its tributaries
3. Binarch Creek - The entire mainstem length and its tributaries
4. Quartz - The entire mainstem length and its tributaries
5. Lamb Creek - The entire mainstem length and its tributaries
6. Priest River - The entire mainstem length and its tributaries

b. Wetlands (meadows, lakes, potholes, etc.) to be protected per the timber sale contract clauses.

c. Riparian Areas, including riparian areas with planned harvest where logging and site prep would differ from the adjoining unit as identified in the timber sale contract.

These features would be reviewed on the ground by the Purchaser and the Sale Administrator prior to harvesting.

A Watershed Specialist (Forest or District) would work with the Presale Forester to insure that the above features have been designated on the Sale Area Map during contract development.

PRACTICE 14.04 - Limiting the Operating Period of Timber Sale Activities
PRACTICE 15.04 - Timing of Construction Activities

OBJECTIVE: To minimize soil erosion, sedimentation and loss in soil productivity by insuring that the Purchaser conducts his operations, including erosion control work, road maintenance, etc., in a timely manner, within the time period specified in the timber sale contract.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: Limited operating periods are identified and recommended during the environmental analysis by the Interdisciplinary Team. Contract language specifies contract termination date and operating periods within that contract. Purchaser's plans must show intent to operate within these time frames prior to approval to commence work. Extensions of time (except for contract term adjustments) and waiver of specified operating periods should be granted only after interdisciplinary team review.

PRACTICE 14.06 - Riparian Designation

OBJECTIVE: To minimize the adverse effects on Riparian Areas with prescriptions that manage nearby logging and related land disturbance activities.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act rules

IMPLEMENTATION: The Riparian Area requirements are identified during the environmental analysis by the interdisciplinary team. The timber sale project is designed to include site-specific recommendations for the prevention of sedimentation and other stream damage from logging activities. The environmental analysis would provide for planning of harvests to insure long-term health and revegetation of the Riparian Areas, while meeting shading, debris recruitment, and other management objectives. As appropriate, monitoring and evaluation would be identified in the environmental analysis documentation. The Presale Forester is responsible for the inclusion of Riparian Area protection measures in the Timber Sale Contract and on the Sale Map Area. The Sale Administrator is responsible for contract compliance during harvest operations.

PRACTICE: 14.11 - Log Landing Erosion Prevention and Control
PRACTICE: 14.12 - Erosion Prevention and Control During Timber Sale Operations
PRACTICE: 14.15 - Erosion Control on Skid Trails.

OBJECTIVE: To protect water quality by minimizing erosion and subsequent sedimentation derived from log landings and skid trails.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act rules

IMPLEMENTATION: The following minimum criteria would be used in controlling erosion and restoring landings and skid trails so as to minimize erosion:

General:

1. Deposit waste material from construction or maintenance of landings and skid and fire trails in geologically stable locations at least 100 feet outside of the appropriate Stream Protection Zone.
2. Seeding would be done with a seed/fertilizer mix specified in the contract.

Landings:

1. During period of use, landing would be maintained in such a manner that debris and sediment are not delivered to any streams.
2. Landings shall be reshaped as needed to facilitate drainage prior to fall and spring runoff. Landings shall be stabilized by establishing ground cover or by some other means within one year after harvesting is completed.
3. Landings would drain in a direction and manner that would minimize erosion and would preclude sediment delivery to any stream.

Skid Trails:

1. Skid trails and fire trails shall be stabilized whenever they are subject to erosion, by waterbarring, cross draining, outsloping, scarifying, seeding, or other suitable means. This work shall be kept current to prevent erosion prior to fall and spring runoff.
2. Spacing of water bars on skid trails would be based on guides for controlling sediment from secondary logging roads (no date). If necessary, additional water bars would be prescribed by the sale administrator and/or watershed specialist.

PRACTICE 14.17 - Stream Channel Protection (Implementation and Enforcement)
PRACTICE 15.19 - Streambank Protection

OBJECTIVES: To protect stream beds and streamside vegetation, during and after forest practice operations and road construction, by (1) maintained unobstructed passage of stormflows; (2) reducing sediment and other pollutants from entering streams; and (3) restoring the natural course of any stream, as soon as practical, if the stream is diverted as a result of timber management activities.

EFFECTIVENESS: High

COMPLIANCE: Meets Forest Practices Act rules

IMPLEMENTATION: Protecting stream channels during timber harvesting is accomplished by contract clause incorporated into the sale contracts. This is normally accomplished by designating particular streams

as protected streamcourses and limiting or restoring timber management operations in streamside zones. There is substantial overlay between timber sale provisions to protect stream channels, and regulations that govern road construction and other practices.

The intent of the regulations and clauses is to protect the integrity of stream channels and minimize adverse impacts to the channel and downstream resources and beneficial uses. The following items are a minimum that would be incorporated into the timber sale contract specifically to govern channel protection in the project area.

1. Purchaser shall repair all damage to a streamcourse if the Purchaser is negligent in their operations, including damage to banks and channel, to an acceptable condition as specified by the Forest Service.
2. All project debris shall be removed from streamcourse, in an agreed manner that would cause the least disturbance. Specifically:

   Whenever possible trees shall be felled, bucked, and limbed in such a manner that the tree or any part thereof would fall away from any streams. Within 24 hours, slash and other debris that enters streams as a result of harvesting operations shall be removed. If the slash would be beneficial (i.e. provide sediment filtering) then the Sale Administrator may allow the Purchaser to leave the slash in place below culverts.
3. Location and method of stream crossing would be designed and agreed to prior to construction.
4. Wheeled or track laying equipment shall not be permitted to operate within 50 feet slope distance of the streams except at approved crossings.
5. On perennial streams, dewatering with filter fabric and/or diversion shall be considered prior to excavation for culvert placement.
6. Filter cloth, erosion control blankets, plastic, straw bales, and rip- rap would be used as appropriate to keep live water from contacting new fill during culvert installations.
7. When dewatering of a stream crossing is required, a non-erodible conduit, flex pipe or geotextile fabric would be used on all crossings. Silt fences shall be constructed below the stream crossing(s) prior to any streambank disturbance.
8. The construction activities in or adjacent to the stream may be limited to specific times to protect beneficial water uses.
9. Logs would be end-lined out of streamside and Riparian Areas. Equipment is permitted to enter streamside areas only at locations and times agreed by the Forest Service.
10. Material from temporary road and skid trail stream crossings would be removed and streambanks restored to an acceptable condition.
11. When cable yarding across or inside the riparian areas is necessary logs should be fully suspended across a stream and immediately above streambanks. Yarding shall be done in such a manner as to minimize streambank channel disturbance.
12. Construction equipment may cross, operate in or operate near streamcourses only where so agreed to and designated by the Forest Service prior to construction. Crossing of perennial stream channels would be done in compliance with the specifications included in the contract.
13. On perennial streams, stream channel alteration specifications would include the following:

    a. *Ford the stream only at one location.*
    b. *Any cofferdams or temporary crossings should be designed to handle high streamflows.*
    c. *Protect streambank vegetation as much as possible.*
    d. *All fill materials shall be placed and compacted in horizontal lifts.*
    e. *If rip rap is used, it shall extend at least one foot above anticipated high water mark, and meet minimum size criteria.*
    f. *Rip rap shall extend far enough upstream and downstream to reach stable areas.*

14. If the channel is damaged during construction, it would be restored as nearly as possible to its original configuration without causing additional damage to the channel.
15. Construction methods shall provide for eliminating or minimizing discharges of turbidity, sediment, organic matter or toxic materials. A settling basin may be required for this purpose.

PRACTICE 14.18 - Erosion Control Structure Maintenance

OBJECTIVE: To ensure that construction erosion control structures are stabilized and working effectively.

EFFECTIVENESS: High

IMPLEMENTATION: The timber sale contract requires that during the period of the contract, the Purchaser shall provide maintenance of soil erosion control structures constructed by the Purchaser until they become stabilized, but not for more than one year after their construction. After 1 year, any erosion control work needed is accomplished through the Forest Service funding.

The timber sale contract also requires the Purchaser to maintain the erosion control structures concurrently with his operations under the sale, and in any case, not later than 15 days after completion of skidding each unit or subdivision.

PRACTICE 14.19 - Acceptance of Timber Sale Erosion Control Measures Before Sale Closure

OBJECTIVE: To assure the adequacy of required erosion control work on timber sales.

EFFECTIVENESS: High

COMPLIANCE: No directly related Forest Practices Act rule.

IMPLEMENTATION: The timber sale contract requires that upon the Purchaser's written request and assurance that work has been completed the Forest Service shall perform an inspection. In evaluating acceptance the following definition would be used by the Forest Service: "Acceptable" erosion control means only minor deviation from established standards, provided no major or lasting impact is caused to soil and water resources. The Forest Service would not accept as complete, erosion control measures which fail to meet this criteria.

PRACTICE 14.20 - Slash Treatment in Sensitive Areas

OBJECTIVE: To protect water quality by protecting sensitive tributary areas from degradation which would result from using mechanized equipment for slash disposal.

EFFECTIVENESS: Moderate

COMPLIANCE: No directly related Forest Practices Act rule.

IMPLEMENTATION: Sensitive areas needing special protection are identified by the interdisciplinary team in the Timber Sale Planning Process. Results are documented during the environmental analysis and identified in the slash treatment plan. The timber sale contract is prepared to incorporate provisions to provide the level of protection prescribed.

PRACTICE 14.22 - Modification of the Timber Sale Contract

OBJECTIVE: To modify the Timber Sale Contract if new circumstances or conditions indicate that the timber sale would cause irreversible damage to soil, water, or watershed values.

EFFECTIVENESS: High

COMPLIANCE: No directly related Forest Practices Act rules.

IMPLEMENTATION: If evidence indicates that unacceptable impacts would occur to soil and water resource if the sale was harvested as planned, the Forest Service Representative would request the Contracting Officer to gain Regional Forester advice and approval to proceed with a resource environmental modification, mutual cancellation, or unilateral cancellation of the Timber Sale Contract as allowed by the timber sale contract.

PRACTICE 15.02 - General Guidelines for the Location and Design of Roads and Trails

OBJECTIVE: To locate and design roads and trails with minimal soil and water resource impact while considering all design criteria.

EFFECTIVENESS: Moderate

COMPLIANCE: Exceeds Forest Practices Act rules

IMPLEMENTATION: As the timber sale contract is assembled, road location and design criteria are assembled from several volumes of standards, and optional specifications and guidelines. Specific roads and road segments often have specifications that are unique to the road or road segment. The following listed items, however, are general road location and design guidelines for minimizing impacts on water quality.

1. Fit the road to the topography - Use natural benches, follow contours, avoid long, steep road grades. Balance cut/fill where possible to avoid waste areas.
2. Locate on stable topography. Whenever possible, avoid slumps and slide prone areas and steep side hills.
3. Locate roads a safe distance away from streams and other water bodies, and provide an adequate buffer zone to trap sediment before it enters into any water body.
4. Minimize the number of stream crossings and choose stable sites. Structures would be designed (sized) for long-term stability, generally for the Q50+ (or greater) and then bumped up to the next culvert size and would provide for fish passage, if present. Use the IPNF Hydraulic analysis developed by Bob Embry to determine the Q50.
5. Locate and design roads to drain naturally by appropriate use of outsloping and insloping with cross drainage and grade changes, where possible. Cross drains would be installed to 1) carry interpreted flow across constructed areas; 2) to relieve the length undrained ditch; and 3) to reduce disruption of normal drainage patterns. Road and trail drainage should be channeled to effective buffer areas, either natural or man-made, to maximize sediment deposition prior to entry into live water.
6. Ditchlines and road grades would be designed to minimize unfiltered flow into streams. A rolling dip, relief culvert or similar structure would be installed as close as practical to crossings to minimize direct sediment and/or water input directly into streams. The drainage would be routed through the SMZ, buffer strips, or other sediment settling structures where possible.
7. At a minimum, windrows would be installed 100 feet on both sides of live stream crossings and where installation would minimize sediment delivery to nearby streams or channels. Windrows would also be installed where fill slope erosion is possible, or where road derived erosion may be delivered; (i.e. outflow area of culverts or rolling dips, etc.).

8. Design to the standard necessary to accomplish anticipated use and equipment needs safely, while providing for long-term protection of the soils and water.
9. Seeding and fertilization of erodible surfaces exposed during construction would be accomplished. Next season seeding would be done where original treatment is not fully successful.
10. Road construction occurring outside the normal operating season would have additional restrictions on the amount of pioneered road and additional erosion control measures.

PRACTICE 15.03 - Road and Trail Erosion Control Plan

OBJECTIVE: To prevent, limit, and mitigate erosion, sedimentation, and resulting water quality degradation through timely implementation of erosion control practice.

EFFECTIVENESS: Moderate

COMPLIANCE: No related Forest Practices Act rule

IMPLEMENTATION: Prior to the start of construction, the Purchaser shall submit a schedule for proposed erosion control work as required in the Standard Specifications. The schedule shall include all erosion control items identified in the specifications. Erosion control work to be done by the Purchaser would be defined in Standard Specification 204 and/or in the Drawings. The schedule shall consider erosion control necessary for all phases of the project. The Purchaser's construction schedule and plan of operation would be reviewed in conjunction with the erosion control plan by the Timber Sale Administrator, District Watershed Specialist, and Engineering to insure their compatibility before any schedules area approved. The Engineer would certify that the Purchaser's Erosion Control Plan meets the specifications.

PRACTICE 15.06 - Mitigation of Surface Erosion and Stabilization of the Slopes

OBJECTIVE: To minimize soil erosion from road cutslopes, fillslopes and travelway

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act Rule

IMPLEMENTATION: Areas requiring mitigation of surface erosion may occur anytime during the life of the timber sale contract. When these are found, the following provisions would be implemented:

a. All disturbed areas associated with road construction and reconstruction would be seeded. The first seeding would be applied as soon as practical after cuts and fills are brought to grade within seeding seasons as established in the timber sale contract. A second seeding in the fall or spring season following road construction would be required where original seeding did not adequately revegetate exposed soil areas.

b. Where surface erosion is occurring because of inadequate vegetative cover, additional seeding and re-fertilization would occur using recommended seed and fertilizer mixes. If the Purchaser has done his required seeding, or bare spots are not caused by the Purchaser, seeding would be done by the Forest Service.

c. Where ditches are carrying erosion products into stream channels, straw bale and erosion cloth ditch blocks would be installed to "short-circuit" the delivery. Seeding of the eroding surfaces and seeding of the stored sediment in the ditch would also be accomplished.

d. Where either straw bale/erosion cloth structures are not felt to be effective, underdrains or other measures would be installed to drain the ditches onto suitable ground, or at least reduce erosion impacts to the stream.

e. Slumping of cutslopes would require a combination of both mechanical and vegetative controls. If/when this problem is found, a solution would be determined in consultation with Engineers, geotechnical and resource specialists and appropriate actions taken to remedy the situation or minimize adverse impacts.

f. Additional underdrains (i.e. French drains) would be constructed where intercepted moisture is encountered on incised stream approaches. Erosion control blankets and straw bales would be used to dissipate ditch scour and stabilize fill slopes.

g. At ditch relief culvert locations, or at culvert locations in dry or intermittent wet draws, the piles shall not be broken but shall be placed a minimum of 20 feet below the culvert outlet. At culvert locations in live streams, piles shall not be broken but shall be continued at the toe of the embankment over the top of the culvert. No slash shall be allowed to restrict the flow of water from the culvert.

Unless caused by the Purchaser during his maintenance operations, or known before sale award and included in timber sale contract, these items (a-g) would be beyond the scope of Purchaser responsibility. Repair and/or improvement would be then handled by contract modification or by the Forest Service.

PRACTICE 15.07 - Control of Permanent Road Drainage

OBJECTIVE: To minimize the erosive effects of concentrated water and the degradation of water quality by proper design and construction of road drainage systems and drainage control structures.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act rules

IMPLEMENTATION: The following items would be included in the identified road contract specifications or drawings.

1. *For New Construction and Reconstruction* - During and following operations on outsloped roads, retain out slope drainage and remove berms on the outside except those intentionally constructed for protection of road grade fills.
2. *For New Construction* - The following criteria would be incorporated into new road design:
   a. Construct cross drains and relief culverts to minimize erosion of embankments. Minimize the time between construction and installation of erosion control devices. Use riprap, vegetative matter, downspouts and similar devices to minimize erosion of the fill.
   b. Prior to fall or spring runoff, install drainage structures or cross-drain uncompleted roads which are subject to erosion.
   c. Install relief culverts at a minimum grade of 1 percent greater than road gradient.
3. *For Existing Roads* - At a minimum, the following items would be added to or improved in the existing road system that would be used for proposed timber haul:
   a. Energy dissipaters or downspouts would be placed below problem culvert outlets (Reconstruction item).
   b. In all areas where ditch erosion is significant at this time, relief culverts that drain onto suitable areas would be installed (Reconstruction item).
   c. Roads restricted after use would also have erosion control measures in place prior to final pull-out.

d. For all native surface roads to be restricted after use, the travelway would be seeded and fertilized: and would have the surface roughened to accept seed germination and vegetative establishment where necessary and beneficial.

PRACTICE 15.08 - Pioneer Road Construction

OBJECTIVE: To minimize sediment production and mass wasting associated with pioneer road construction.

EFFECTIVENESS: Moderate

COMPLIANCE: No directly related Forest Practices Act rule.

IMPLEMENTATION: The following contract specifications would be required:

a. Construction of pioneer roads shall be confined to the roadway limits unless otherwise approved by the Contracting Officer.

b. Pioneering shall be conducted so as to prevent undercutting of the designated final cut slope, and to prevent avoidable deposition of materials outside the designated roadway limits.

c. Erosion control work would be completed concurrent with construction activity or prior to the wet season. During the wet and winter season, no more that 1,000 feet of road can be in the pioneer state without the required erosion control work completed.

d. Permanent culverts would be installed during the pioneer phase unless positive control of sediment can be accomplished during installation, use, and removal of the temporary structure.

PRACTICE 15.09 - Timely Erosion Control Measures on Incomplete Road and Stream-Crossing Projects:

OBJECTIVE: To minimize erosion of and sedimentation from disturbed ground on incomplete projects.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act rules

IMPLEMENTATION: The following measures would be implemented during projects:

1. Temporary culverts, side drains, flumes, cross drains, diversion ditches, energy dissipaters, dips, sediment basins, berms, debris racks, or other facilities needed to control erosion would be installed as necessary. The removal of temporary culverts, culvert plugs, diversion dams, or elevated stream-crossing causeways would be completed as soon as practical.
2. The removal of debris, obstruction, and spoil material from channels and floodplains.
3. Seeding with native species to minimize erosion.
4. Installation of drainage structures or cross draining uncompleted roads which are subject to erosion prior to fall or spring runoff.

Erosion control measures must be kept current with ground disturbance, to the extent that the affects area can be rapidly "closed" if weather conditions deteriorate. Areas must not be abandoned for the winter with remedial measures incomplete.

PRACTICE 15.10 - Control of Road Construction Excavation and Sidecast Material
PRACTICE 15.18 - Disposal of Right-of-Way and Roadside Debris

Objective: To measure that unconsolidated excavated and sidecast material, construction slash, and roadside debris generated during road construction is kept out of streams, and to prevent slash and debris from subsequently obstructing channels.

Effectiveness: High

Compliance: Meets Forest Practices Act rules

Implementation: In the construction of road fills near streams, compact the material to reduce the entry of water, and minimize the amount of snow, ice, or frozen soil buried in the embankment. No significant amount of woody material shall be incorporated into fills. Slash and debris may be windrowed along the toe of the fill, but in such a manner as to avoid entry into a stream and culvert blockage.

Where slash windrows are not desirable or practical, other methods of erosion control such as erosion mats, mulch, and straw bale or fabric sediment fences would be used. Where exposed material (excavation, embankment, borrow pits, waste piles, etc.) is potentially erodible, and where sediments would enter streams, the material would be stabilized prior to fall or spring runoff by seeding, compacting, rip-rapping, benching, mulching or other suitable means.

PRACTICE 15.13 - Controlling In Channel Excavation

OBJECTIVE: To minimize downstream sedimentation by insuring that all in-channel excavations are carefully planned.

EFFECTIVENESS: High

COMPLIANCE: Meets SCA rules

IMPLEMENTATION: Location and method of stream crossings would be designed and agreed to prior to construction. The following items highlight some of the principal provisions which can be incorporated into the timber sale contract that would govern channel protection:

1. Construction equipment may cross, operate in, or operate near streamcourses only where so agreed to and designed by the Forest Service prior to construction.
2. No construction equipment shall be operated below the existing water surface except that fording the stream at one location only would be permitted, and work below the water level that is necessary for culvert bedding or footing installations would be permitted to the extent that it does not create unnecessary turbidity to stream channel disturbance.
3. Wheeled or track laying equipment shall not be permitted to operate within 25 feet slope distance of the apparent high water mark of Type 5 streams 75 feet of Type 4 streams, except at approved crossings.
4. Construction of any hydraulic structures in stream channels would be in compliance with timber sale contract specifications.

PRACTICE 15.14 - Diversion of Flows Around Construction Sites

OBJECTIVE: To minimize downstream sedimentation by insuring that all stream diversions are carefully planned.

EFFECTIVENESS: High

COMPLIANCE: Meets SCA Rules

IMPLEMENTATION: Flow in streamcourses may only be diverted if the Forest Service deems it necessary for the contractor to meet contractual specifications. Such a diverted flow shall be restored to the natural streamcourse as soon as practicable. Stream channels impacted by construction activity would be restored to their natural grade, condition, and alignment.

PRACTICE 15.15 - Stream Crossings on Temporary Roads

OBJECTIVE: To keep temporary roads from unduly damaging streams, disturbing channels, or obstructing fish passage.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets SCA Rules

IMPLEMENTATION: The following preventive measures would be included in contract specifications for such installations:

a. Divert stream flow through or around project sites during construction when that would minimize downstream sedimentation. Active streams would be de-watered or diverted during culvert installations only at the direction of the Forest Service.

b. Erodible material shall not be deposited into live streams.

c. Any material stockpiled on floodplains shall be removed before rising water reach the stockpiled material.

d. During excavation in or near the streamcourse, it may be necessary to use suitable coffer dams, caissons, cribs of sheet piling. This would usually be the cause where groundwater is contributing a significant amount of water to the immediate excavation area. If any of the aforementioned devices are used, they would be practically watertight and no excavation would be made immediately outside of them.

e. Water pumped form foundation excavation shall not be discharged directly into live streams, but shall be pumped into settling ponds or into locations where water would not re-enter stream.

PRACTICE 15.17 - Regulation of Borrow pits, Gravel Sources and Quarries

OBJECTIVE: To minimize sediment production form borrow pits, gravel sources, and quarries, and limit channel disturbances in those gravel sources suitable for development in floodplains.

EFFECTIVENESS: High

COMPLIANCE: No Related Forest Practices Act RULE

IMPLEMENTATION: Minimize opportunities for erosion from borrow pits and gravel sources from entering streams.

1. Complete any crushing and/or screening of excavating bedload away from any active stream channels and minimize future opportunities for waste materials to enter area streams, even under flood conditions.

2. Identify and implement opportunities to minimize erosion from existing borrow pits within the drainage.

3. If development of new rock sources are needed within the watershed, complete a pit development plan or rock source development plan which outlines all mitigation measures needed to control future erosion of the rock source.

PRACTICE 15.18 - Disposal of Right-of-Way and Roadside Debris

OBJECTIVE: To insure that debris generated during road construction is kept out of streams and to prevent slash and debris from subsequently obstructing channels. Also see Practice 15.10

EFFECTIVENESS: High

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: Disposal of Right-of-Way and roadside slash be accomplished with one or more of the following practices.

1. Windrowing
2. Scattering
3. Chipping
4. Piling and Burning
5. Removal to previously agreed to locations.

Solid cull logs may be bucked into manageable lengths and piled alongside the road for fuelwood. No wood may obstruct flow in ditchlines or culverts.

PRACTICE 15.19 Streambank Protection

OBJECTIVE: To minimize sediment production form streambanks and structural abutments in natural waterways.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: To reduce sediment and channel bank degradation at sites disturbed by construction of stream crossing or roadway fill, it may be necessary to incorporate "armoring" in the design of a structure to allow the water course to stabilize after construction. Riprap, gabion structures, and other measures are commonly use to armor stream banks and drainage ways form the erosive forces of the flowing water. These measures must be sized and installed in such a way that they effectively resist erosive water velocities. Stone use for riprap should be free from weakly structured rock, soil, organic material and materials of insufficient size, all of which are not resistant to stream flow and would only service as sediment sources. Outlets for drainage facilities in erodible soils commonly require rip-rapping for energy dissipation. See conservation practice 14.17 for additional measures.

PRACTICE 15.21 - Maintenance of Roads

OBJECTIVE: To conduct regular preventive maintenance operations to avoid deterioration of the roadway surface and minimize disturbance and damage to water quality, and fish habitat.

EFFECTIVENESS: Moderate

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: For roads in active timber sale areas standard timber sale contract provisions require the Purchaser to perform or pay for road maintenance work commensurate with the Purchaser's use. Purchaser's maintenance responsibility shall cover the before, during and after operations period during any year when operations and road use are performed under the terms of the Timber Sale Contract. All maintenance work shall be done concurrently, as necessary, at least to the following minimum standards:

1. Culverts and ditches shall be kept functional.
2. During and upon completion of seasonal operations, the road surface shall be crowned, out-sloped, in-sloped or waterbarred, and berms removed from the outside edge except those intentionally constructed for protection of fills.
3. The road surface shall be maintained as necessary to minimize erosion of the subgrade and to provide proper drainage.
4. If road oil or other surface stabilizing materials are used, apply them in such a manner as to prevent their entry into streams.
5. Sidecast of all material associated with road maintenance would be done in a manner to prevent its entry into streams.
6. Slumps, slides and other erosion features causing stream sedimentation would be kept repaired and stabilized.

PRACTICE 15.22 - Road Surface Treatment to Prevent Loss of Materials

OBJECTIVE: To minimize the erosion of road surface materials and consequently reduce the likelihood of sediment production.

EFFECTIVENESS: High

COMPLIANCE: No directly related Forest Practices Act Rule

IMPLEMENTATION: On timber sale roads, the Purchaser shall undertake measures to prevent excessive loss of road material if the need for such action has been identified by the interdisciplinary team. Road surface treatments may include: watering, applying magnesium chloride, sealing, aggregate surfacing, chip-sealing, or paving.

PRACTICE 15.24 - Snow Removal Controls

OBJECTIVE: To minimize the impact of snow melt on road surfaces and embankments and to reduce the probability of sediment production resulting from snow removal operations.

EFFECTIVENESS: Moderate

COMPLIANCE: No directly related Forest Practices Act Rule

IMPLEMENTATION:

1. The Purchaser is responsible for snow removal in a manner which would protect roads and adjacent resources.
2. Rocking or other special surfacing and/or drainage measures may be necessary, before the operator is allowed to use the roads.
3. During snow removal operations, banks shall not be undercut nor shall gravel or other selected surfacing material be bladed off the roadway surface. Ditches and culverts shall be kept functional during and

following roadway use. If the road surface is damaged, the Purchaser shall replace lost surface material with similar quality material and repair structures damaged in blading operations.

4. Snow berms shall not be left on the road surface or shall be placed to avoid channelization or concentration of melt water on the road or erosive slopes. Berms left on the shoulder of the road shall be removed and/or drainage holes opened at the end of winter operations and before spring breakup. Drainage holes shall be spaced as required to obtain satisfactory surface drainage without discharge on erodible fills. On in slopped roads, drainage holes shall also be provided on the ditch side, but care taken to insure that culvert inlets are not damaged.

PRACTICE 15.25 - Obliteration of Temporary Roads

OBJECTIVE: To reduce sediment generated from temporary roads by obliterating them at the completion of their intended use.

EFFECTIVENESS: High

COMPLIANCE: Meets Forest Practices Act Rules

IMPLEMENTATION: Effective obliteration is generally achieved through a combination of the following measures:

1. Road effectively drained and blocked.
2. Temporary culverts and bridges removed and any modified channel slopes stabilized and revegetated.
3. Road returned to resource production through revegetation (native species, or trees).
4. Sideslopes reshaped and stabilized.

PRACTICE 18.02 - Formulation of Fire Prescriptions
PRACTICE 18.03 - Protection of Soil and Water form Prescribed Burning

OBJECTIVE: To maintain soil productivity, minimize erosion, and prevent ash, sediment, nutrients and debris from entering surface water.

EFFECTIVENESS: High

COMPLIANCE: No Related Forest Practices Act Rule

IMPLEMENTATION: The prescription elements are defined by the interdisciplinary team during the environmental analysis. Field investigations are conducted to identify site-specific conditions which may affect the prescription. Both the optimum and tolerable limits for soil and water resource needs should be established. Prescription elements would include such factors as fire, weather, slope aspect, soil moisture and fuel moisture which influence the fire intensity. These elements have a direct effect on whether or not a litter layer remains after burning and whether or not a water repellent layer is formed. The amount of remaining litter significantly affects erosion rates, water quality and runoff volumes.

NEWPORT RANGER DISTRICT

Introduction

Best Management Practices (BMPs) are the primary mechanism to enable the achievement of water quality standards. Best Management Practices are defined as "methods, measures, or practices selected by an agency to meet its nonpoint source control needs."

The USDA Forest Service, Pacific Northwest Region (R6) has developed a set of general BMPs, described in General Water Quality Best Management Practices, November 1988. This publication describes the legal background of BMPs, including the role of BMPs in meeting the Clean Water Act, and the Memorandum of Understanding between the Forest Service and Washington State Department of Ecology regarding the use of BMPs on Federal lands (1978).

The selection and design of BMPs are an integral part of the Colville National Forest's Land and Resource Management Plan Standards and Guidelines for Soil, Water, and Air (Forest Plan, pgs. 4-50 to 4-54). The BMP process, including monitoring, is described in the Forest Plan, page 4-51 item 3; and the Forest Plan Final EIS, Appendix G. Appropriate BMPs are selected for each project and reviewed by an interdisciplinary team. BMP selection and design are dictated by site-specific water quality objectives, soils, topography, geology, vegetation, climate, economics, institutional constraints, etc. These BMPs were selected to protect beneficial uses, and meet other resource needs.

This Final EIS includes required BMPs. Many of the BMPs are included as Mitigation Measures, but some are incorporated as standard practice into project implementation. Many BMPs are standard timber sale contract provisions. Some of these BMP's are mitigation measures required by the Washington State Department of Fish and Wildlife under the Memorandum of Understanding with the USDA Forest Service, Pacific Northwest Region (1997). The following Best Management Practices have been selected and designed to meet water quality standards for the Douglas-fir Beetle Project Environmental Impact Statement.

Douglas-fir Beetle Project Best Management Practices

WATERSHED MANAGEMENT

PW-3 Protection of Wetlands

Objective: To avoid adverse water quality impacts associated with destruction or modification of wetlands.

Explanation: The Forest Service does not permit the implementation of activities and new construction in wetlands whenever there is a practical alternative. Evaluation of proposed actions in wetlands would consider factors relevant to the proposal's effect on the survival and quality of the wetlands. Factors to be evaluated include water supply, water quality, recharge areas, flood and storm hazards, flora and fauna species, habitat diversity and stability, and hydrologic utility.

Implementation and Responsibility: The Regional Forester is responsible for ensuring that wetland values are considered and documented as an integral part of all planning processes. The Forest Supervisor would determine whether proposed actions would be located in wetlands and, if so, whether there is a viable alternative. The Forest Supervisor must ensure that all mitigating measures are incorporated into the plans and designs and that the actions maintain the function of the wetlands. During project planning, all potentially-impacted wetlands should be identified on maps. Identification and mapping of wetlands are part of the land management planning data inventory process.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed, wildlife, and resource specialists verify that all wetlands requiring projection have been identified either at the Forest Planning or project level. The land management planning data inventory is updated when non-mapped wetlands are identified at the project level.

How it Specifically Applies to This Project: No activities are proposed in wetlands.

W-5 Cumulative Watershed Effects

Objective: To protect the beneficial uses of water and streams from the cumulative effects of multiple land management activities which may result in adverse (degraded) water quality or stream habitat conditions.

Explanation: Cumulative, off-site watershed effects (CWE) include all adverse impacts on beneficial uses of water occurring away from the sites of actual land management activities, as well those effects which occur after the activity has occurred.

Implementation and Responsibility: To evaluate the extent of additional management activity that can be recommended in a given watershed the following process is employed:

1. *The existing watershed condition is determined.*
2. *The additional effects that proposed management activities would be expected to create are estimated and added to the existing conditions.*
3. *The cumulative effects and condition is compared a threshold of concern, which considers Basin objectives for the watershed.*

If the condition is estimated less than the threshold value, the management activity in question occurs as planned. If the condition approaches or exceeds the threshold of concern, a caution flag is raised for the manager. Prior to implementing the planned activity, the scheduling of activities, type and effectiveness of mitigation measures, and potential for watershed improvement activities are reviewed, to determine if changes can be made which would result in the project meeting watershed objectives.

Proposed activities are evaluated in terms of their locations relative to sensitive land types. Proposed activities occurring within or adjacent to sensitive land types are evaluated in terms of types of activities that have been judged to be appropriate for those grounds. As required, the nature and/or location of the activity is modified to insure adequate protection of the sensitive land.

Ability to Implement: High

Effectiveness: High

Monitoring: Specialists evaluate watershed and channel condition for both project and forest planning level analyses. The evaluations compare actual conditions with those estimated in either the Forest Plan or project environmental documents. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: A cumulative watershed effects analysis was done for this project and is discussed in Chapter III, Newport Ranger District, "Watershed."

TIMBER

PT-1 Timber Sale Planning Process

Objective: To introduce water quality and hydrologic considerations into the timber sale planning process.

Explanation: The timber sale planning process identifies problems and provides for administrative controls, corrective treatments, and preventive measures. This process defines and estimates the potential changes to water quality and instream beneficial uses. An analysis of cumulative watershed effects is also completed. The result is an EA or EIS and a sale plan or analysis files. These documents would describe how to avoid potential damage during and following the sale layout and subsequent logging operations. Mitigation of

damaging effects for those treated areas where damage is unavoidable would be required. The EA or EIS would also preclude treatment of environmentally sensitive areas where damage from proposed treatments cannot be mitigated to conform to Federal, State and Local water quality criteria.

Implementation and Responsibility: Hydrologists, fish biologists, geologists, and soil scientists evaluate watershed characteristics and estimate response to proposed timber harvest and related activities. The timber sale project is designed to include site-specific prescriptions for each area of water quality concern. The subsequent timber sale contract would include provisions to meet water quality criteria and other resource protection requirements as provided by the EIS.

Ability to Implement: High since these functions are totally within Forest Service control.

Effectiveness: High

Monitoring: As described for the remaining BMPs, as well as Forest Service reviews of timber sales.

How it Specifically Applies to This Project: Monte Williams (hydrologist) and Shanda Dekome (fish biologist) were interdisciplinary team members for the North Zone, including Newport. They did the initial evaluation of conditions and helped in the development of alternatives. Jill Cobb (hydrologist) was responsible for the data gathering, Dale Deiter (hydrologist, Bonners Ferry) worked on the modeling of effects. Monte Williams, Rick Patten, Jill Cobb, and Nancy Glines analyzed the effects.

PT-2 Timber Harvest Unit Design (See INFS standards and guideline TM-1)

Objective: To ensure that timber harvest unit design would secure favorable conditions of water flow, water quality and fish habitat.

Explanation: This is an administrative and preventive practice. The proposed timber harvest units are evaluated to estimate the response of the watersheds involved to the proposed timber sale. This includes examining the ability of the watershed to absorb the impacts of the proposed harvest. Characteristics to be evaluated can include the recovery from past harvests; wildfire: the allowable area that can be harvested; the protection of channels; the number, size, and location of harvest units; estimated location and size of roads and skid trails; logging system design; and the potential natural recovery rate of the watershed. Where adverse impacts on the water resource can result, the harvest unit design is modified, and/or watershed treatment measures are applied to accelerate the natural recovery rate.

Implementation and Responsibility: The hydrologic survey and evaluation of proposed timber harvest is accomplished through the interdisciplinary process of timber sale planning. Prescriptions to assure acceptable watershed conditions are incorporated into the EIS, sale plan or analysis files. On-the-ground accomplishment of the EIS or sale plan direction is carried out by the Sale Preparation Forester, the Sale Administrator, and the administrator of post-sale slash disposal and cultural activities, with follow-up review by qualified resource specialists (hydrologists, fisheries biologists, soil scientists, and geologists). The need for water quality monitoring is identified in the EIS when necessary for water quality control. Periodic field reviews evaluate timber harvest unit design.

Ability to Implement: High, since this planning function is within the Forest Service control.

Effectiveness: High

Monitoring: See implementation and responsibilities section. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: The project analysis evaluated the recovery from past harvests, the role of fire in this ecosystem, and the potential natural recovery rate of the watershed. Harvest units generally avoided landtypes with high sediment delivery potential. Effects of the alternatives on runoff and sediment were analyzed. All harvest units are designed using the riparian habitat conservation areas (RHCAs) prescribed by INFISH, and therefore are expected to avoid adverse impacts to water flow, water quality and fish habitat.

PT-3 Use of Erosion Potential Assessment for Timber Harvest Unit Design

Objective: To prevent downstream water quality degradation by the timely identification of areas with high erosion potential and adjustment of harvest unit design.

Explanation: This is a preventive practice. The potential for erosion and mass wasting for an area are estimated by evaluating the soil, topography, rock type, drainage patterns, water conditions, and plant community. Where the potential for erosion and mass wasting is high, special practices and mitigation measures would be applied. Where the potential is low to moderate, some special practices and mitigation measures would be applied, but generally fewer than for areas having high erosion and mass wasting potential.

Implementation and Responsibility: The determination of the potential for erosion and mass wasting is part of the pre-sale planning process and is evaluated for each timber harvest unit by a watershed specialist. The interdisciplinary team then uses the information to help design the timber sale.

Ability to Implement: High since this is a planning function.

Effectiveness: High

Monitoring: Watershed specialists would evaluate the post-harvest condition of selected harvest units. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: A preliminary determination of the potential for erosion, sediment delivery, and mass wasting was done as part of the ecosystem analysis or during project planning. Units with high erosion potential (grantic soils) to be tractor yarded: 31a. Units with high potential for sediment delivery (as mapped) to be all or partially tractor yarded: 21, 23a, 26a, and 41a. These areas are "sensitive" for timber harvest. Implement the following special practices:

1. *Avoid long, steep skid trails. Generally, limit tractor and skidder logging to slopes less than 30%.*
2. *Take special care to ensure seeding is effective. Seed all skid trails during a time when germination is expected to be successful (spring or fall).*

PT-4 Use of Sale Area Maps for Designating Water Quality Protection Needs

Objective: To delineate the location of protection areas and available water sources as a guide for both the Purchaser and the Sale Administrator, and to ensure their recognition and proper consideration and protection on the ground.

Explanation: The following features are designated on the Sale Area Map, which is an integral part of the timber sale contract.

1. *Location of stream courses to be protected*
2. *Wetlands (meadows, lakes, bogs, etc.), if any, to be protected*
3. *Boundaries of harvest units*
4. *Specified roads*
5. *Roads where log hauling is prohibited or restricted*
6. *Structural improvements*
7. *Areas for different skidding, felling, and yarding methods*
8. *Sources of rock for road work, riprapping, etc.*
9. *Water sources available for Purchaser's use*
10. *Other features required by Division "C" contract provisions*

This is an administrative and preventive practice.

Implementation and Responsibility: The interdisciplinary team identifies and delineates these and other features on maps which are included in the sale plan or analysis files, along with a discussion of each area.

The Sale Preparation Forester includes them on the Sale Area Map at the time of contract preparation. The areas are reviewed on-the-ground by the Purchaser and the Sale Administrator prior to harvesting.

Ability to Implement: High, but depends on field verification of map work.

Effectiveness: High

Monitoring: The Sale Area Map is checked by the Sale Preparation Forester, engineers, and watershed specialists to assure accuracy. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Apply as written.

PT-5 Limiting the Operating Period of Timber Sale Activities

Objective: To ensure that the Purchaser conducts operations in a timely manner, within the time period specified in the Timber Sale Contract (TSC).

Explanation: Use timber sale contract provisions BT 6.3, CT 6.315 and AT 17.

Implementation and Responsibility: Limited operating periods are identified and recommended during the Timber Sale Planning Process by the interdisciplinary team and followed through the life of the timber sale primarily by the Sale Administrator.

Ability to Implement: Moderate, since judgement is needed to identify potential damaging conditions.

Effectiveness: High

Monitoring: During implementation of timber sale activities by the Sale Administrator, Forest Service Representative (FSR), engineers, and watershed specialists. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: The interdisciplinary team recommended a standard timber sale operating period from June 1 through October 30. Operations outside the normal operating period would require a written plan from the purchaser outlining the measures to be used to prevent resource damage. In addition to the standard operating period, the interdisciplinary team recommended the three periods of restricted harvest and haul for deer and elk and for recreation. No special operating periods were recommended to protect watershed values.

PT-6 Protection of Unstable Lands

Objective: To provide for identification and appropriate management prescriptions for unstable lands.

Explanation: Unstable lands (Timber Marginal Lands, TML) are designated as unsuitable to be managed for timber production, but where appropriate, may be suitable for timber harvest following catastrophic events, such as wildfire or blowdown. Lands designated as unsuitable would be reviewed and analyzed as part of the forest planning process. The final decision regarding suitability would become part of the Forest Plan. Small unstable areas are frequently not identified until project level planning occurs.

Implementation and Responsibility: The Forest or Ranger District interdisciplinary team uses input provided by watershed specialists. Where unstable lands are presently classified as suitable forest lands and this is found to be in error, they are changed to the classification of unsuitable forest lands.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed and silviculture specialists would assist sale layout personnel in an advisory capacity during sale layout. Field reviews would also be used to evaluate the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Lands with high potential for mass wasting were identified in project planning. No harvest is proposed on unstable lands.

PT-7 Streamside Management Unit Designation

Objective: To designate a riparian area or zone along streams and wetlands where prescriptions are made that would minimize potential adverse effects of nearby logging and related land disturbance activities on water quality and beneficial uses.

Explanation: See timber sale contract provisions BT 6.5,6.6, CT 6.4 and 6.42.

Implementation and Responsibility: The Streamside Management Unit requirements are identified by an interdisciplinary team during the environmental analysis. The timber sale project is designed to include site-specific BMP prescriptions for the prevention of sedimentation and other stream damage from logging debris. The timber sale contract would be designed to implement the SMU prescriptions and areas of avoidance. The Sale Preparation Forester is responsible for the inclusion of the special management areas in the timber sale contract and Sale Area Map, as identified in the EIS and analysis files. The Sale Administrator is responsible for timber sale contract compliance during harvest operations.

Ability to Implement: High

Effectiveness: High

Monitoring: Specialists would assist in evaluating the effectiveness of this BMP. Field reviews would also be used to evaluate the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Standard Riparian Habitat Conservation Area (RHCA) widths would be implemented. No harvest is proposed in any RHCA's.

PT-8 Streamcourse Protection (Implementation and Enforcement)

Objective: (1) To protect the natural flow of streams, (2) to provide unobstructed passage of stormflows, and (3) to prevent sediment and other pollutants from entering streams.

Explanation: This management practice employs administrative, preventive, and corrective measures to meet the objectives. The following points are fundamental to protecting streams and streamcourses:

1. *Location, method and timing of streamcourse crossings must be agreed to prior to construction. This project would have few tractor units, and the instances where a skid trail would cross a stream are expected to be rare.*
2. *Purchaser shall repair all unavoidable damage to a streamcourse, including damage to banks and channel, to the extent practicable.*
3. *All project debris shall be removed from streamcourses, unless otherwise agreed, and in an agreed manner that would cause the least disturbance.*
4. *Equipment shall not operate within SMUs or protected streamcourses, as identified on the Sale Area Map.*
5. *Equipment is permitted to enter streamside areas only at locations agreed to by the Sale Administrator and the Purchaser.*
6. *Water bars and other erosion control structures would be located so as to prevent water and sediment from being channeled into streamcourses, and to dissipate concentrated flows.*
7. *Logs would normally be fully or partially suspended in cable log harvesting operations within the SMU of protected streamcourses, and would be fully suspended over the protected streamcourse.*

Implementation and Responsibility: The Sale Administrator works with the Purchaser's representative to ensure that the timber sale contract provisions covering the above items are carried out on the ground. Specialists can be called upon to help the Sale Administrator with decisions.

Ability to Implement: High

Effectiveness: High

Monitoring: Specialists would assist in evaluating the effectiveness of this BMP. Field reviews would also be used to evaluate the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: No harvest is proposed in RHCA's. Skid trails would avoid crossing streams to the extent possible. Skyline yarding over streams is not anticipated; however, item 7 above was modified to include full suspension over streamcourses.

PT-9 Determining Tractor Loggable Ground

Objective: To protect water quality from degradation caused by tractor logging ground disturbance.

Explanation: Tractor logging is restricted to lands that can be harvested with a minimum of soil compaction and erosion. Factors considered when selecting tractor operable land are: slope, topography, soil texture, soil drainage, and drainage pattern.

Implementation and Responsibility: Land suitable for tractor logging is identified in the pre-sale phase of the timber sale planning process. Provisions in the timber sale contract specify the areas and conditions upon which tractors can operate. Requirements governing tractor operations are incorporated in the timber sale contract.

Ability to Implement: High

Effectiveness: High

Monitoring: The Sale Administrator oversees the operation to ensure compliance. Specialists conducted field evaluations of selected tractor logging units. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Tractor logging would be limited to slopes generally less than 35% except as described in BMP PT-3.

PT-10 Log Landing Location

Objective: To locate landings in such a way as to minimize creation of hazardous watershed conditions.

Explanation: See timber sale contract provisions BT 6.422 and CT 6.4.

Implementation and Responsibility: The majority of landings are constructed by the Forest Service during road construction of specified roads. The Sale Administrator ensures that the landings are located and constructed according to the timber sale contract.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed specialists would assist in evaluating the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Landings would not be located within RHCA's, and would be designed to avoid sedimentation into streams.

PT-11 Tractor Skid Trail Location and Design

Objective: To minimize the area compacted, erosion, and runoff water.

Explanation: See timber sale contract provisions BT 6.422, CT 6.4, 6.41 and 6.42.

Implementation and Responsibility: Sensitive areas, including steep and unstable ground, drainages, and high water table soils are identified in silvicultural prescriptions and logging plans. Prescriptions, including

skid trail patterns, may be included in the timber sale contract and on the Timber Sale Map. The Sale Administrator executes the prescription on-the-ground by locating the skid trails with the timber Purchaser or by agreeing to the Purchaser's proposed locations prior to construction.

Ability to Implement: High

Effectiveness: High

Monitoring: The Sale Administrator observes operations and watershed specialists visually monitor implementation of this BMP periodically throughout implementation. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Sensitive areas are identified in BMP PT-3, and criteria for skid trail location and design are located in that BMP. Skid trails will generally be 140 feet apart, except where converging at landings or as necessary to avoid rock outcrops or wetlands.

PT-12 Suspended Log Yarding in Timber Harvesting

Objective: To protect soils from excessive disturbance. To maintain the integrity of the SMU and other sensitive watershed areas.

Explanation: Suspended log yarding includes skyline and helicopter yarding systems. Ground disturbance is reduced by suspending logs either partially or wholly above the ground while transporting them to the landing. These yarding systems require fewer truck roads. Less soil disturbance and fewer truck roads would result in less impact on the water resource.

Implementation and Responsibility: Areas where suspended log yarding is to be used are determined during the environmental analysis, documented in the EIS, and included in the sale plan or analysis files. These specific systems are required in the timber sale contract and designated on the Sale Area Map by the Sale Preparation Forester. The Sale Administrator oversees the project operation using the guidelines and standards established in the timber sale contract.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed specialists periodically evaluate on-going harvest operations. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Areas of skyline, tractor and helicopter yarding have been identified (see FEIS appendix D). Generally, trees will be suspended on one-end only, with the following exceptions:

a) *Logging over streams is not anticipated. However, should it occur, trees must be fully suspended over the streamcourse.*
b) *One-end suspension may not be feasible in the vicinity of "knobs". None of these knobs are expected to be near streamcourses, therefore lack of full suspension would not adversely effect water quality.*

PT-13 Erosion Prevention and Control Measures During Timber Sale Operations

Objective: To ensure that the Purchaser's operations shall be conducted to minimize soil erosion.

Explanation: See timber sale contract provisions BT 6.6 and CT 6.6#.

Implementation and Responsibility: Equipment shall not be operated when ground conditions are such that excessive damage would result. The kinds and intensity of control work done by Purchaser shall be adjusted to ground and weather conditions and the need for controlling runoff. Erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff. The Sale Administrator and Forest Service Representative oversee implementation by the purchaser. Specialists are available for advice as needed.

Ability to Implement: High

Effectiveness: High

Monitoring: In addition to responsibilities for implementation described above, watershed specialists would evaluate the effectiveness of seasonal erosion control work. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Apply this BMP as written.

PT-14 Revegetation of Areas Disturbed by Harvest Activities

Objective: To establish a vegetative cover on disturbed sites to prevent erosion and sedimentation.

Explanation: See timber sale contract provision CT 6.6#.

Implementation and Responsibility: An estimate of the need is included in the sale plan or sale planning records, and in the timber sale appraisal. Where the establishment of vegetation is needed, appropriate language must be included in the timber sale contract. The Forest Service shall annually designate on the ground the disturbed soils, such as logging areas and temporary roads, that must be treated.

The Forest Service, shall provide requirements as to soil preparation and the application of suitable seed mixtures, mulch, and fertilizer, and the timing of such work. It is the responsibility of the Sale Administrator to make sure that revegetation work is done correctly and in a timely manner.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed specialists would assist the Sale Administrator during implementation and also in evaluating the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Scarify and seed all landings. Seed skid trails in 'sensitive' areas (see BMP PT-3).

PT-15 Log Landing Erosion Prevention and Control

Objective: To reduce the impacts of erosion and subsequent sedimentation, on log landings, by use of mitigating measures.

Explanation: See timber sale contract provisions BT 6.63 and CT 6.6#. The Sale Preparation or Planning Forester and Sale Administrator assess the need for stabilization, with watershed specialist input as needed.

Implementation and Responsibility: Timber sale contract requirements provide for erosion prevention and control measures on all landings. Provisions are made in the timber sale contract for landings to have proper drainage. After landings have served the Purchaser's purpose, the Purchaser shall ditch or slope the landings to permit the drainage and dispersion of water. Provisions are also made for revegetation, if necessary. The specific work needed on each landing would depend on the actual ground conditions. It is the responsibility of the Sale Administrator to ensure that this practice is properly implemented on the ground.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed specialists would assist in evaluating the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Apply this BMP as written.

PT-16 Erosion Control on Skid Trails

Objective: To protect water quality by minimizing erosion and sedimentation derived from skid trails.

Explanation: See timber sale contract provisions BT 6.64 and CT 6.6#. Normally, the work involves constructing cross ditches and water spreading ditches. Other methods such as backblading may be agreed to in lieu of cross drains. Grass seeding may also be required in the timber sale contract.

Implementation and Responsibility: Location of all erosion control measures are designated and agreed to on the ground by the Sale Administrator. The Purchaser is obligated to complete and maintain erosion control work specified in contract provisions. The Sale Administrator ensures that the Purchaser completes and maintains the erosion control work specified in the timber sale contract.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed specialists assist the Sale Administrator, as needed, with on-going operations and also evaluate the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Implement as written. Revegetation of skid trails is described in BMP PT-3 and PT-14.

PT-17 Meadow Protection During Timber Harvesting

Objective: To avoid locating roads, landings, and skid trails in meadows.

Explanation: See timber sale contract provision BT 6.61. To protect watershed and wildlife values, roads should not be located in meadows.

Implementation and Responsibility: Sensitive areas, including steep and unstable ground, drainages, and high water table soils are identified in silvicultural prescriptions and logging plans. Prescriptions, including skid trail patterns, may be included in the timber sale contract and on the Timber Sale Map. The Sale Administrator executes the prescription on-the-ground by locating the skid trails with the timber Purchaser or by agreeing to the Purchaser's proposed locations prior to construction.

Ability to Implement: High since this is a planning step.

Effectiveness: Moderate

Monitoring: The Sale Administrator observes operations and watershed specialists visually monitor implementation of this BMP periodically throughout implementation. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: The only meadow in this planning area is located at Cooks Lake. No harvest is proposed adjacent to this meadow. This meadow will not be used as a landing.

PT-18 Erosion Control Structure Maintenance

Objective: To ensure that constructed erosion control structures are stabilized and working.

Explanation: See timber sale contract provisions BT 6.66 and CT 6.6#.

Implementation and Responsibility: During the period of the timber sale contract, the Purchaser shall provide maintenance of soil erosion control structures constructed by the Purchaser. The Sale Administrator oversees the Purchaser's implementation of this BMP. After one-year, erosion control structure maintenance work may be accomplished through watershed restoration practices by the Forest Service.

Ability to Implement: High

Effectiveness: High

Monitoring: Watershed specialists would evaluate the effectiveness of the erosion control structures and recommend additional maintenance or erosion control work. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Apply this BMP as written.

PT-19 Acceptance of Timber Sale Erosion Control Measures Before Sale Closure

Objective: To assure the adequacy of required erosion control work on timber sales.

Explanation: See timber sale contract provision BT 6.35.

Implementation and Responsibility: Specific requirements for erosion control are included in each timber sale contract. Sale Administrators, with assistance as needed from watershed specialists, would ensure erosion control measures conform to the applicable provisions.

Ability to Implement: Moderate

Effectiveness: High

Monitoring: Watershed specialists would evaluate the effectiveness of the soil erosion prevention and control measures. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Apply this BMP as written.

PT-20 Reforestation

Objective: To reforest all suitable land harvested within five years after the regeneration cut and to promptly reforest all other suitable areas not harvested but in need of reforestation.

Explanation: Regeneration harvest areas are regenerated with trees within five years after cutting. Natural regeneration is used to supplement planting wherever possible.

The implementation of this practice affects water quality by helping to stabilize soils, increase ground cover, and provide improved infiltration.

Implementation and Responsibility: During the timber sale planning process, the interdisciplinary team assesses the capability of proposed areas to achieve reforestation within the prescribed period. The silviculturist is responsible for this work and uses information collected by the interdisciplinary team, such as; soil productivity, depth, available moisture holding capacity, microclimate, plant indicators, slope, aspect, shape of slope, position on slope, percent of course rock fragments, moisture regime and potential for natural regeneration. This information is used to determine regeneration methods.

Ability to Implement: High

Effectiveness: High

Monitoring: Regeneration and stocking surveys would be done by the Forest Service to verify the success of the reforestation.

How it Specifically Applies to This Project: Apply this BMP as written.

PT-21 Servicing and Refueling of Equipment

Objective: To prevent pollutants such as fuels, lubricants, bitumens, raw sewage, wash water and other harmful materials from being discharged into or near rivers, streams and impoundments or into natural or man-made channels leading thereto.

Explanation: See timber sale contract provisions BT 6.34 and CT 6.341.

Implementation and Responsibility: The COR, Engineering Representative, or Sale Administrator would designate the location, size and allowable uses of service and refueling areas. They would also be aware of emergency notification procedures and actions to be taken in case of a hazardous substance spill.

Ability to Implement: Moderate

Effectiveness: High

Monitoring: Watershed specialists would assist in evaluating the effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Do not locate servicing and refueling landings in or near RHCA's. Implement as written.

PT-22 Modification of the Timber Sale Contract

Objective: To modify the timber sale contract if new circumstances or conditions arise and indicate that the timber sale would irreversibly damage soil, water or watershed values.

Explanation: Once timber sales are sold, they are harvested as planned via the timber sale contract. At times, however, it may be necessary to modify a timber sale contract when it is determined that operations would cause serious environmental damage. See timber sale contract provision CT 8.3.

Implementation and Responsibility: If the timber sale, as determined by the appropriate line officer, would unacceptably affect watershed values, the sale would be modified to protect the watershed through agreement with the timber sale Purchaser; or, the contract may be terminated by the Chief of the Forest Service, if the Purchaser does not agree to the terms of the environmental modification.

Ability to Implement: High

Effectiveness: High

Monitoring: Field review process. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Apply this BMP as written.

ROAD SYSTEMS

PR-1 General Guidelines for the Location and Design of Roads

Objective: To locate and design roads which would have minimum resource damage.

Explanation: Road location and design standards would be based on the intended road purpose and protection of aquatic resources. General road location Standards would include the following:

1. *Review the road logs prepared by the hydrologists for this project to ascertain the needs they saw.*
2. *Road design standards will be the minimum necessary to meet both user and resource needs.*
3. *Road surfacing should be applied within RHCA to minimize sedimentation.*
4. *Design road reconstruction to minimize maintenance, especially in roads that will be closed after use.*
5. *The following guidelines pertain to the replacement or removal of culverts*
   a. *Review all culverts. Replace culverts as necessary so that culverts maintain structural integrity to the 100-year flood flow with consideration for the debris likely to be encountered. In lieu of sizing a culvert so that the fill will not be overtopped, the 100-year flood may be accommodated with a high water bypass design. Fill associated with the culvert installation shall be protected from erosion to the 100-year peak flow.*
   b. *Culverts in fishbearing streams will be installed to provide for upstream fish passage. The 1997 Memordium of Understanding between the Washington State Department of Fish and Wildlife provides specific guidelines for providing fish passage.*

c. *Unless a bottomless culvert is used, a single barrel culvert shall be installed. The culvert width at the streambed shall be equal to or greater than the average width of the streambed. If a bottomless culvert is used, the width between the culvert footings shall be equal to or greater than the average width of the streambed and the footings shall be buried sufficiently deep so they will not be exposed by scour.*

7. *Roadway drainage should be designed so that water concentrated by the road prism is dispersed prior to entering stream channels.*
8. *Roads will be designed in such a way that stream flow will not be diverted down the road in the event of a crossing failure.*
9. *In ephemeral draws (swales) the designed drainage should generally be a self maintaining type such as a drain dip or outslope drain (OSD). Generally use culverts in ephemeral draws where the cost of stabilizing the roadbed and fill slope on drain dips and OSD are greater than for the culvert installation with scour protection.*

Implementation and Responsibility: Road location standards would be implemented by the PROJECT TRANSPORTATION PLANNER. Road design standards would be implemented by the ROAD DESIGNER.

Ability to Implement: Moderate for location in that site-specific analysis may allow deviating from the general guidelines. High for design in that there are set tightly controlled processes for checking design work.

Effectiveness: High where the new construction road location can limit the area of cut and fill slopes and the number of stream crossings.

Monitoring: Location and design standards would be monitored by the Forest Engineer or his designate in tagline reviews and the engineering road contract review process.

How it Specifically Applies to This Project: This BMP was modified for this project.

PR-2 Erosion Control Plan Submittal, Approval and Application

Objective: To limit and mitigate erosion and sedimentation through effective planning prior to initiation of road reconstruction or obliteration activities and through effective contract administration on planned methods during reconstruction.

Explanation: Include contract clause CT6.311 to require the Purchaser prior to starting road reconstruction work, to submit a plan of operation for road reconstruction which sets forth general erosion control measures to be used. As a minimum, include in the plans sufficient language to designate Category 1 to 3 RHCA as "Sensitive" where drainage structure work is required in the RHCA on reconstruction. Category 4 RHCA may also be designated as "Sensitive" reconstruction areas when called for in the site-specific analysis. Require and approve with any needed negotiation the Purchaser's methods for reconstruction in these "Sensitive" areas.

As a minimum, the plan of operation for road reconstruction should include erosion control measures for road work not completed prior to the seasonal shutdown. As a minimum, the methods for construction through "Sensitive" areas would include:

1. *How water is to be diverted from construction area in non-erodable conduits or ditches.*
2. *How diverted water would be filtered if sediment enters the stream.*
3. *How earthwork construction would proceed across the drainage as the drainage structure is installed.*
4. *How sediment would be contained within the clearing limits during construction.*

Implementation and Responsibility: The ROAD DESIGNER would be responsible for including language in the plans which designate the catagory 1 to 3 RHCA as "Sensitive". The ENGINEERING REPRESENTATIVE (ER) would be responsible for reviewing and approving the road construction operating plan and methods for construction in "Sensitive" areas. The Engineering Representative would also be responsible for inspecting work for compliance with the operating plan and methods of construction proposed by the Purchaser. If the Purchaser's work is not in conformance with the agreed upon requirements in the road

construction operating plan and methods of construction, the Engineering Representative would be responsible for taking appropriate action under the contract.

Ability to Implement: Moderate given that the Engineering Representative and purchaser need to negotiate an agreed upon operating plan with methods of reconstruction.

Effectiveness: Moderate depending on the amount of precipitation encountered during reconstruction.

Monitoring: The Engineering Representative would monitor the effectiveness of the operating plan and construction methods in "Sensitive" areas in reducing erosion. The Engineering Representative would document their findings in the contract daily diary or final inspection report.

How it Specifically Applies to This Project: This BMP was modified for this project.

PR-3 Timing of Construction Activities

Objective: To minimize erosion by conducting road reconstruction and obliteration during minimal runoff periods.

Explanation: Road reconstruction and obliteration work would predominately be done within the normal operating season dates of June 1 and October 31. Culvert replacement and removal is limited to the period between July 1 and September 30. Work may be accomplished outside this time period subject to the approval of the Engineering Representative. Specification 204 and Special Project Specification (SPS) 204.01F1 would be included in the contract to require the following work scheduling as a minimum:

> *Limit the length of road not built with perminent drainage to 1000' outside the appropriate road construction operating season. The above limitations may be adjusted at the discretion of the Engineering Representative based on current weather and ground conditions.*

Implementation and Responsibility: The Road Designer is responsible for assuring Specification 204 and applicable Special Project Specifications (SPS) are used in the contract, with the appropriate road construction operating season dates identified. The Engineering Representative is responsible for assuring that the reconstruction or obliteration is accomplished in conformance with the plans, specifications and contract clauses.

Ability to Implement: Moderate since the Engineering Representative does not have 100% control over the timely placement of erosion control structures.

Effectiveness: High compared to having an uncontrolled amount of road in an incomplete state outside the normal operating season.

Monitoring: The Engineering Representative would monitor the effectiveness of this BMP and document their findings in the contract daily diary.

How it Specifically Applies to This Project: This BMP was modified for this project.

PR-6 Dispersion of Subsurface Drainage Associated with Roads

Objective: To minimize the possibilities of roadbed, cut and fill slope failure and the subsequent production of sediment.

Explanation: On existing roads: Where seasonal subsurface flow occurs in the roadbed and traffic use would produce soil movement outside the clearing limits, traffic management would be the first action taken to limit soil movement. Where traffic management would not have sufficient effect on subsurface flow in the roadbed to limit soil movement to the clearing limits, the road would be reconstructed to achieve this goal. Reconstruction could include constructing a cutoff ditch on the uphill side of the road to lower the water table and intercept subsurface drainage, installing subsurface blanket or trench drains to achieve the same objective, or leaving the subsurface drainage net as is and stabilizing the roadbed with stabilization fabric and ballast material.

Implementation and Responsibility: The Road Designer would be responsible for accomplishing sufficient field work to determine where perennial subsurface flow is affecting existing roads and where evident subsurface flow is occurring along new construction alignments as a minimum. The Road Designer is responsible for designing appropriate measures to limit soil movement due to subsurface flow to within the clearing limits. For those cases where subsurface flow is discovered in construction, the Engineering Representative is responsible for designing the appropriate measures for limiting soil movement to the clearing limits. The Engineering Representative and FOREST SERVICE REPRESENTATIVE (FSR) are responsible for managing commercial traffic under the Timber Sale to minimize roadbed damage where subsurface flow is present.

Ability to Implement: High since these are standard forest practices.

Effectiveness: Moderate due to some subsurface drainage problems not being evident until roads are constructed.

Monitoring: The effectiveness of design methods would be evaluated and documented by the Forest Hydrologist during BMP monitoring trips. The effectiveness of traffic management would be documented by the Engineering Representative or Forest Service Representative in their contract daily diaries.

How it Specifically Applies to This Project: This BMP was modified for this project.

PR-7 Control of Surface Roadway Drainage

Objective: (1) To minimize the erosive effects of water concentrated by road drainage features, (2) dispersing run-off from the road, and (3) minimizing soil movement outside the road clearing limits.

Explanation: Water Concentrated by road drainage features would be relieved from the roadway at short enough intervals (based on soil type) that soil movement would be minimized outside the road clearing limits. Where it is impractical to relieve drainage in short enough intervals, ditches and roadbeds should be armored to achieve a more practical spacing of drainage structures. The old drainage structure handbook chart would be used as a guide to determine spacing of drainage structures based on soil type. Where roadbeds and ditches are armored, concentrated water may still need to be relieved at selected intervals less than those shown on the handbook chart to adequately disperse runoff from the road. Fill slopes may need to be armored to sustain road drainage flows. Filter any concentrated water that is channeled directly into an RHCA to minimize sedimentation. Minimize the size of drainage area draining directly into RHCA's. Generally space roadbed and ditch relief drainage so that drainage structures are located in ephemeral draws where possible. Revegetate reconstructed roads and ditches to minimize erosion in the mid to long term by grass seeding as part of the construction contract. Roads to be closed after the Timber Sale should have their roadbeds seeded at the time of closure.

Implementation and Responsibility: The ROAD DESIGNER is responsible for determining the soil type for basing drainage structure spacing, and for applying the above guidance in the design and spacing of drainage structures and armoring.

Ability to Implement: High since this is standard forest practice.

Effectiveness: High

Monitoring: The Forest Hydrologist would be responsible for monitoring and documenting the effectiveness of these measures.

How it Specifically Applies to This Project: Implement as written.

PR-12 Location, Design and Control of Construction in Riparian Habitat Conservation Areas (RHCA)

Objective: To reduce the adverse effects of sedimentation from nearby roads on slope stability, vegetation, and aquatic resources in riparian areas.

Explanation: This project would use standard RHCA widths from the Inland Native Fish Strategy. Location, design and construction practices within these areas would include the following:

1. *Locate waste areas outside of RHCA.*
2. *Water concentrated by the road prism should be filtered prior to entering the stream channel where run-off is not effectively filtered by the forest floor. Brush blankets, filter windrows or fences, riprap blankets or sediment basins are some examples of filtering methods.*
3. *Minimize the amount of concentrated water channeled into the RHCA from the road prism to reduce the sediment carrying capacity of water flowing into the RHCA.*
4. *Minimize the amount of concentrated water from ditches and roadbed flowing over fill slopes to reduce the sediment carrying capacity of water flowing into the RHCA over material that is more easily moved than undisturbed soil.*
5. *Protect cut and fill slopes within the 100 year flood plain from erosion to create a stream crossing which would not fail when subjected to a 100 year flood flow.*
6. *Protect roadbeds within RHCA by armoring with aggregate surfacing.*
7. *Added mid to long term erosion protection and stabilization measures may be required adjacent to streams in RHCA based on site-specific analysis. This could include items such as planting riparian vegetation or other "bio-engineering" techniques.*
8. *See BMP PR-2 for minimum construction methods required for construction in sensitive areas, including RHCA's.*
9. *No sediment producing materials should be left within the 100 year flood plain unless they are designated to be placed there such as road embankment. During obliteration of encroaching roads, do not place erodable materials within the 100-year floodplain.*

Implementation and Responsibility: The ROAD DESIGNER would be responsible for applying the above design standards to reconstructed and obliterated roads. The Engineering Representative would be responsible for assuring that the road plans, specifications, operating plans and contract clauses are implemented under the contract.

Ability to Implement: High for location and design due to the forest's review procedures. Moderate in construction since the Engineering Representative is not present on the construction site at all times.

Effectiveness: High

Monitoring: In signing the road plans for the Sale, the reviewing engineer attests that they incorporate the standards in this BMP. The Engineering Representative would monitor the effectiveness of construction standards in their contract daily diaries. The Forest Hydrologist would monitor the mid to long term effectiveness of these standards.

How it Specifically Applies to This Project: Implement as written.

PR-12A Replacement and Removal of Culverts

Objective: To reduce the adverse effects of sedimentation during replacement and removal of culverts.

Explanation: This project follows the direction in the 1997 Memorandum of Understanding between the U.S. Forest Service and the Washington State Department of Fish and Wildlife (hereafter referred to as the HPA Memorandum of Understanding). Construction practices within these areas will include the following:

1. *Alternation or disturbance of of the bank and bank vegetation shall be limited to that necessary to replace or remove the culvert. Within 7 calander days of project completion, all disturbed areas will be protected from erosion using vegetation or other means. Within 1 year the banks shall be revegetated with native or other woody species. Vegetation shall be planted and maintained as necessary to ensure at least 80% survival.*
2. *Equipment used to remove/replace culverts shall be free from external petroleum-based products while working in or around the stream. Accumulations of soil or debris shall be removed from the drive mechanism and undercarriage prior to it's working below the ordinary high water mark. Equipment shall be checked daily for leaks, and repairs shall be competed prior to working along streams.*
3. *In fishbearing streams, culverts shall be placed on a flat gradient with the bottom of the culvert placed below the level of the streambed (see HPA Memorandum of Understanding for details). In non-fish bearing streams, follow directions in the HPA Memorandum of Understanding #10.*
4. *At any time, as a result of the project, fish are observed in distress or a fish kill occurs, or water quality problems develop, cease operations and contact the Washington State Department of Fish and Wildlife and the Washington State Department of Ecology immediately. Work shall not resume until approval is given by Washington State Department of Fish and Wildlife..*
5. *The culvert should be designed and installed to prevent scour at the inlet and to prevent erosion of the streambanks downstream. The stream bed at culvert outlets should be protected from scour for velocities expected in the 100-year flood flow.*
6. *Culvert work will be done 'in the dry' or in isolation from the stream flow. This is generally achieved by the use of a bypass flume or culvert, or by pumping the streamflow around the worksite. Water will be contained by non-erodable dams or a sump. Water will be diverted by piping or a non-erodable ditch. Waste water from project activities and dewatering shall be routed to an area outside the ordinary high water line to allow removal of fine sediment and other contaminants prior to discharge to the stream. If a temporary bypass is used, it shall be in place prior to starting work in the wetted area. The HPA Memorandum of Understanding describes the use of sandbags to dewater the site. In fish bearing streams, devises used to bypassing the stream shll be equiped with a fish guard.*
7. *No sediment producing materials should be left within the 100-year flood plain unless they are designated to be placed there such as road embankment.*

Implementation and Responsibility: The ROAD DESIGNER will be responsible for applying the above design standards in reconstructed and obliterated roads. The Engineering Representative will be responsible for assuring that the road plans, specifications, operating plans and contract clauses are implemented under the contract.

Ability to Implement: High for location and design due to the forest's review procedures. Moderate in construction since the Engineering Representative is not present on the construction site at all times.

Effectiveness: High

Monitoring: In signing the road plans for the Sale, the reviewing engineer attests that they incorporate the standards in this BMP. The Engineering Representative will monitor the effectiveness of construction standards in their contract daily diaries. The Forest Hydrologist will monitor the mid to long term effectiveness of these standards.

How it Specifically Applies to This Project: This BMP was added for this project.

PR-15 Disposal of Right-of-way and Roadside Debris

Objective: To ensure that clearing debris generated during road construction are not deposited in streams, thus preventing debris obstructions building up in stream channels.

Explanation: Clearing slash (tops, limbs, stumps, and unmerchantable logs) inside the clearing limits would be treated in accordance with Specification 201 or 299 ("Forest Service Specifications for Construction of Roads and Minor Drainage Structures").Specification 201 states that clearing slash not be deposited in lakes, streams or streambeds, and that slash shall be removed from interfering with drainage structures.Specfication 299 states that clearing slash not be deposited in stream courses.Construction slash shall not be placed within the 50 year flood plane in perennial streams.

Implementation and Responsibility: The ROAD DESIGNER would be responsible for including the above design standards in the project plans and specifications.The ENGINEERING REPRESENTATIVE (ER) would be responsible for assuring that the project is constructed in accordance with the plans and specifications.

Ability to Implement: High. This is standard contract provision.

Effectiveness: High.

Monitoring: The effectiveness of controlling roadway clearing slash disposal to the above standards would be visually monitored at the Timber Sale road final inspection.

How it Specifically Applies to This Project: Implement as written.

PR-18 Maintenance of Roads

Objective: To maintain roads in a manner which provides for water quality protection by controlling the placement of waste material, keeping drainage facilities open, and by repairing ruts and failures to reduce sedimentation and erosion.

Explanation: Road maintenance would be a required work activity under contract clauses CT5.4, CT5.42 and CT5.43 where applicable on this timber sale. Standard maintenance specifications with specific work requirements would be included in this timber sale contract, as applicable, for roadbed blading, ditch cleaning, culvert cleaning, roadbed clearing and slide removal.

On road segments in or immediately adjacent to RHCA, excess material removed from sloughed cutslopes or ditches, which cannot be worked into the road surface, would be hauled to a disposal site designated by the Engineering Representative or Sale Administrator (SA).

Implementation and Responsibility: The ROAD DESIGNER would be responsible for including the appropriate maintenance specifications as dictated by the applicable road segment features on roads used in the timber sale. The Engineering Representative or Sale Administrator is responsible for assuring that the maintenance work is performed according to the specifications in the contract.

Ability to Implement: Moderate since the Sale Administrator and Engineering Representative are not present at all times to monitor road conditions and maintenance work.

Effectiveness: High

Monitoring: The implementation of road maintenance requirements is monitored by the Sale Administrator through the life of the sale, and documented in the contract daily diaries. PR-20 Traffic Control During Wet Periods

How it Specifically Applies to This Project: Implement as written.

PR-21 Traffic Control During Wet Periods

Objective: To minimize road surface damage and rutting, and lessen sediment washing from road surfaces.

Explanation: Under the the timber sale contract, the purchaser's operations would be limited by the operating season clauses in the timber sale contract (BT 6.3, 6.31, 6.6, 6.65, CT 6.3, 6.311, 6.6). Purchaser's operations are limited under these clauses to situations where resource damage would not occur. Resource damage which would limit the purchaser's operations includes local damage that may occur at a single soft, moist spot where displaced soil would move out of the roadway, even when the majority of a road system is trafficable. These weak links in contributing areas to RHCA would be identified and their condition would limit the use of the road by the purchaser.

Implementation and Responsibility: The Sale Administrator would be responsible for controlling purchaser use of forest roads by the timber purchaser.

Ability to Implement: Variable, Sale Administrator is not constantly on the project to react to changes in weather and purchaser's timely response to changes in road stability.

Effectiveness: High but dependent on implementation.

Monitoring: The Sale Administrator would monitor the purchaser's implementation of this BMP and document his findings in the contract daily diaries.

How it Specifically Applies to This Project: Implement as written.

FIRE AND FUELS MANAGEMENT

PF-2 Consideration of Water Quality in Formulating Prescribed Fire Prescriptions

Objective: To provide for water quality protection while achieving the management objectives through the use of prescribed fire.

Explanation: Prescription elements include, but are not limitied to such factors as, fire weather, slope, aspect, soil moisture, and fuel moisture. These elements influence the fire intensity and thus have a direct effect on whether or not a desired ground cover remains after burning, and whether or not a water repellent layer is formed. The amount of remaining ground cover and extensiveness of water repellent soil can significantly affect erosion rates on certain sensitive sites.

Implementation and Responsibility: Field investigations are conducted as required to identify site-specific conditions which may affect the prescription. Water quality objectives are established prior to preparation of the burn plan. The prescription elements are assessed by an interdisciplinary team and the fire prescription prepared by the fire management officer. The fire prescription should be reviewed by the interdisciplinary team, and shall be approved by the appropriate line officer.

Ability to Implement: High

Effectiveness: High

Monitoring: See implementation and responsibility section.

How it Specifically Applies to This Project: Implement as written.

PF-3 Protection Of Water Quality During Prescribed Fire Operations

Objective: To maintain soil productivity, minimize erosion, and prevent ash, sediment, nutrients, and debris from entering water bodies.

Explanation: Some of the techniques used to prevent water quality degradation are:

1. *Constructing water bars in fire lines.*
2. *Maintaining the integrity of the SMU or streamcourse.*
3. *Planning prescribed fires with intensities that would not result in soils becoming hydrophobic.*
4. *Retaining or re-establishing ground cover to prevent erosion of the burned site.*

Implementation and Responsibility: Forest Service and/or other crews are used to prepare the units for burning. This includes water barring firelines and reducing fuel concentrations. The interdisiciplinary team would identify Streamside Management Units and soils with high risk of becoming hydrophobic as part of project planning.

Ability to Implement: High

Effectiveness: High

Monitoring: Forest Service fire organization personnel and watershed specialists monitor implementation and effectiveness of this BMP. Also see Forest Plan monitoring plan.

How it Specifically Applies to This Project: Implement as written.

GLOSSARY OF TERMS

Area Transportation Plan. A plan that identifies the transportation facilities needed to manage the lands and resources for a given area.

Armoring. Protective coverings or structures used to displace the erosive force of water. Rip-rapping is a type of armoring.

Baseline Data. Data representative of a particular base period or concurrent control sample. Normally representative of the undisturbed, undeveloped state.

Best Management Practice (BMP). A practice or a combination of practices, that is determined by a State (or designated area-wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practical (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (40 CFR 130.2(q)).

Contract Provisions. Controls constraints, and/or general direction included in Contracts offered by the Forest Service.

Cross Drain/Ditch. A man made ditch or channel constructed to intercept surface water runoff and divert it before the runoff concentrates to erosive volumes and velocities.

Crowning. Forming a convex road surface which allows runoff to drain from the running surface to both sides of the road prism.

Cumulative Effect. The impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other action (40 CFR 1508.7).

Degraded Watershed. A basin which has suffered environmental damage, resulting in accelerated soil or vegetative loss or chemical contamination to the quantifiable detriment of other resources.

Designated Streams. A stream or portion of a stream identified as warranting special consideration in management decisions and project activities. See also Stream or Streamcourse.

Floodplain. The lowland and relatively flat areas during adjoining inland waters that are covered by its waters during flooding.

Hazardous Substance. Materials which by their nature are toxic or dangerous to handle or dispose of, such as radioactive materials, petroleum products, pesticides, chemicals and biological wastes.

In-Service. Pertains to activities, actions or personnel within the USDA Forest Service.

Interdisciplinary Team (IDT). A group of two or more individuals, with different training or skills, assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. The members of the team proceed to solution with frequent interaction, so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions. This is different form a multidisciplinary team, where each specialist is assigned a portion of the problem and their partial solutions are linked together at the end to provide the final solution. The forming of the team, the data collection and analysis, team discussions, interactive evaluation, and joint resolution of the problem in the Interdisciplinary Process.

Line Officer. Management personnel within the Forest Service Organization consisting of: Secretary of Agriculture, Chief of Forest Service, Regional Foresters, Forest Supervisors, and District Rangers. Refers to the line of authority and responsibility.

Log Landing. An area where logs are skidded or yarded prior to loading and transportation to a mill.

Mitigate. To offset or lessen real or potential impacts of effects through the application of additional controls or actions. Counter measures are employed to reduce or eliminate undesirable or unwanted results.

Monitoring. The periodic evaluation or resources or activities on a representative sample basis to establish long-term trends, assess the impacts of land management activities, determine how well objectives have been met, and check compliance against established standards.

Nonpoint Source (NPS) Pollution. Diffuse sources of water pollution that originate from many indefinable sources and normally include agricultural and urban runoff, runoff from construction activities, etc. In practical terms, nonpoint sources do not discharge at a specific, single location (such as a single pipe). Nonpoint source pollutants are generally carried over or through the soil and ground cover via stormflow processes. Unlike point sources of pollution (such as industrial and municipal effluent discharge pipes), nonpoint sources are diffuse and can come from any land area. It must be kept in mind that this definition is necessarily general: legal and regulatory decisions have sometimes resulted in certain sources being assigned to either the point or nonpoint source categories because of consideration other than their manner of discharge (for example, irrigation return flows are designated as "nonpoint sources" by law, even though the discharge is through a discrete conveyance).

Normal Operating Season. A portions of a year when normal timber harvesting operations are expected to take place uninterrupted by adverse weather conditions.

Outsloping. Shaping a road to cause drainage to flow toward the outside shoulder (generally the fill slope), as opposed to insloping which encourages drainage to flow to the inside shoulder (generally the cut slope). Emphasis is on avoiding concentrated water flow.

Permittee. Individual or entity that has received a grazing or Special Use Permit from the Forest Service.

Pesticide. A general term applied to a variety of chemical materials including insecticides, herbicides, fungicides and rodenticides.

Point Source. Originating from a discrete identifiable source or conveyance.

Purchaser. The entity which is awarded a USDA Forest Service contract after bidding, usually with competition. As used in timber, the entity which has purchased timber as identified in a timber sale contract.

Reforestation. A renewal of forest cover by seeding, planting or natural means.

Revegetation. The replacement of vegetative cover which has been harvested or lost due to natural occurrences. Accomplished either through planting or nursery stock or seeding, or through natural processes.

Riparian Area. Areas with distinctive resource values and characteristics that are comprised of an aquatic ecosystem and adjacent upland areas that have direct relationships with the aquatic system (riparian ecosystems). This includes wetlands and all areas within a horizontal distance of approximately 100 feet from the normal high water line of a perennial stream, or from the shoreline of a standing body of water. The Riparian Area is not a zone of exclusion, but an area of closely managed activity. Riparian Areas act as an effective filter and absorptive zone for sediment: maintain shade; protect aquatics and terrestrial riparian habitats; protect channel and streambeds; and promote floodplain stability.

Rip Rapping. The use of a large rock, boulders, concrete chunks or similar non-erosive, heavy objects as an armoring device.

Road Maintenance Plan. A document schedule and program for upkeep of roads to provide a level of service for the user and protection of resources. There are five levels of maintenance; Level I being the least intense and Level V being the most intensive.

Rocking. The application of aggregate to a roadbed to provide strength and a more stable erosion resistant surface.

Sale Area Map. A map of suitable scale and detail to be legible which part of a timber sale contract. The map identifies sale area boundaries and contract requirements specific to the sale.

Significant Disturbance. Disturbance of surface resources, including soil, water and vegetation, which has the potential to degrade water quality to a level requiring corrective action.

Site Preparation. A general term for removing unwanted vegetation, slash and even roots and stones from a site before reforestation. It is generally accomplished bye either mechanical, chemical, or biological means, or controlled fire.

Site Specific. Pertains to a discernible, definable area of point on the ground where a project or activity would (or is proposed) to occur.

Soil and Water Conservation Practice (SWCP). The set of practices which, when applied during implementation of a project, ensures that soil productivity is maintained, soil loss and water quality impacts are minimized, and water related beneficial uses are protected. These practices can take several forms. Some are defined by state regulation or Memoranda of Understanding between the Forest Service and the States and thus are recognized as Best Management Practices (BMPs). Others are defined by the Forest Service interdisciplinary teams or described in FS Handbooks for application Forest-wide. Both kinds of SWCP are included in the Forest Plan as Forest-wide standards or are referenced in the plans. A third kind of SWCP is identified by the interdisciplinary team for application to specific management areas; these are included as Management Area Standards in the appropriate management areas in the Forest Plan. A fourth kind, project level SWCPs, are based on site-specific evaluations and represent the most effective and practical means of accomplishing the soil and water resource goals of the specific area involved in the project. These project level conservation practices can either supplement or replace the Forest Plan for specific projects. This handbook would aid in the development of the fourth kind of SWCP.

Soil Productivity. The capacity of the soil to produce a specific crop such as fiber and forage, under defined levels of management. It is generally dependent on available soil moisture and nutrients and length of growing season.

Specified Road. A forest development transportation system road that is identified in and to be constructed or reconstructed under a Forest Service contract.

Streamside Management Zone (SMZ). A designated zone that consists of the steam and an adjacent area of varying width where management practices that might affect water quality, fish, or other aquatic resources are modified. The SMZ is not a zone of exclusion, but a zone of closely managed activity. It is a zone which acts as an effective filter and absorptive sone for sediment, maintains shade, projects aquatic and terrestrial riparian habitats, protects channel and streambanks, and promotes floodplain stability. The SMZ may be wider than the riparian area.

Wetlands. Those areas that are inundated by surface or groundwater with a frequency sufficient, under normal circumstances, to support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated solid conditions for growth and reproduction. Wetlands included marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, seeps and springs.

Windrowing. To pile slash or debris is a row along the contour of the slope.